IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, ET AL., **Plaintiffs,** **v.** **BRAD RAFFENSPERGER, ET AL.,** **Defendants.**	**Civil Action No. 1:17-CV-2989-AT**

**COALITION PLAINTIFFS' BRIEF IN SUPPORT OF
MOTION FOR PRELIMINARY INJUNCTION**

Coalition Plaintiffs file this Brief in Support of their Motion for Preliminary

Injunction.

I. INTRODUCTION

The State Defendants told this Court on April 9, 2019 that they had taken "to

heart"[1] the concerns of the Court about the State's electronic voting system. In the

recommendations to the General Assembly, however, Defendant Secretary of State

insisted on a legislative mandate for another vulnerable unauditable electronic

voting system. The State Defendants have yet again ignored the advice and

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[1] April 9, 2019 Hearing Tr. at 5.

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warnings of the foremost voting system and auditing experts in the nation, and are

in the process of deploying another voting system that places unconstitutional

burdens on Georgia voters' right to vote and have their vote counted. The

Coalition Plaintiffs accordingly have moved for an order directing Defendants to

conduct all elections after January 1, 2020 using hand marked paper ballots as the

primary method of recording the electors' votes. The remedy sought is eminently

feasible because the State Defendants are already enjoined by this Court's August

15, 2019 Order to develop a backup plan using hand marked paper ballots in

conjunction with Georgia's Dominion Voting System.[2]

The relief requested by the Coalition Plaintiffs in some respects is

substantially the same as relief sought by the Curling Plaintiffs in their Motion for

Preliminary Injunction, (Doc. 619), but Coalition Plaintiffs seek different and

additional relief in several critical respects. In Part II, the Coalition Plaintiffs will

explain the relief they are seeking and the differences between such relief and the

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[2] As used in Coalition Plaintiffs' Motion papers, the term "Georgia's Dominion Voting System" includes each of the components listed in the Secretary's August 9, 2019 Certification, a copy of which is attached as Exhibit A, and the KNOWiNK PollPad Plus electronic pollbook, certified October 11, 2019, see Exhibit B. Dominion ImageCast X Prime (ICX BMD) Ballot Marking Device, which is part of Georgia's Dominion Voting System, will sometimes be referred to specifically as the "Dominion BMD." The KNOWiNK PollPad Plus electronic pollbook device, which is a part of Georgia's Dominion Voting System, will sometimes be referred to specifically as the "PollPad Electronic Pollbook."

relief sought by the Curling Plaintiffs. In Part III, Coalition Plaintiffs show that they continue to have standing and, in Part IV, show that they are entitled to preliminary injunctive relief.

II. SUMMARY OF RELIEF SOUGHT BY COALITION PLAINTIFFS

A. Hand marked paper ballots instead of BMDs.

Coalition Plaintiffs join the Curling Plaintiffs in seeking an immediate ban on the use of electronic ballot marking devices ("BMDs"), and accordingly seek an order directing "the Defendants to conduct all elections after January 1, 2020 using hand-marked paper ballots as the primary method of recording the electors' votes." (Coalition Motion, ¶ 1). The Coalition Plaintiffs' Motion further provides that "Defendants shall not be prohibited from using electronic or other appropriate voting units for persons with disabilities." (*Id.*).

B. Election Management System and Scanners

The relief that the Curling Plaintiffs seek would implicitly require the State Defendants to use components of Georgia's Dominion Voting System (as defined), including the Dominion election management system and the Dominion scanners with hand marked paper ballots beginning January 1, 2020. Because of the uncertainty as to whether the Dominion election management system and scanners

can be deployed on time for use with hand marked paper ballots beginning with

January 2020 elections, the relief that the Coalition Plaintiffs seek would give the

State Defendants the flexibility to use the Dominion election management system

and scanners[3] *or* the State's currently certified Diebold GEMS system and

AccuVote scanners. This flexibility is necessary because, at this juncture, there is

no assurance that the massive conversion and high risk implementation that the

State Defendants are undergoing will be successful, even for the reduced amount

of equipment required for hand marked paper ballot elections.[4] Since under

Coalition Plaintiffs' proposed relief, robust pre-certification audits of results of

hand marked paper ballots are required (*see* Coalition Motion, ¶ 4), using the

already installed and operational Diebold GEMS system and AccuVote scanners is

an acceptable, constitutional alternative.[5]

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[3] Under Coalition Plaintiffs' requested relief, Dominion's equipment, including its scanners, may
not be used if they violate ballot secrecy, discussed below.

[4] As the Court noted in its August 15, 2019 Order, there is "reason to doubt" that "the BMD
system will be rolled out in time for the federal Presidential Primary in 2020." (Doc. 579 at
142). The Court added: "the Court has concerns about the State's ability to procure, test, and
install the equipment for all 159 counties, implement an entirely new elections management,
ballot building, and voter registration system, and perform the necessary training of local
election officials in the schedule set by the State." (Doc. 579 at 145).

[5] This is the same system that Coalition Plaintiffs have been urging the State Defendants to
deploy as a transition system since 2017. *See* Doc. 258-1 at 93, 98 n.3.

Further, as described in Curling's Brief (Doc.619-1 pages 5 -11), the entire Dominion Voting System (Exhibit A) has serious unmitigated vulnerabilities, and has undergone little field testing or debugging in Georgia. Providing an option to use and thoroughly audit the presently installed Diebold GEMS/AccuVote scanner system greatly reduces risks of implementation failures, election day chaos, and unauditable elections.

A possible unintended consequence of this Court's August 15, 2019 Order (Doc. 579) is that, by prohibiting the continued use of the components of GEMS election management system and AccuVote scanners, the injunction may have the practical effect of forcing the State to accept and deploy Georgia's Dominion Voting System, regardless of its flaws, its actual readiness, or the officials' ability to manage the largest voting system conversion ever attempted in the country. Coalition Plaintiffs' motion accordingly seeks a modification of this Court's August 15, 2019 Order (Doc. 579) "to permit the use of AccuVote optical scanners and the Diebold GEMS election management system where hand marked paper ballots are used as the primary method of voting." (Coalition Motion, ¶ 2).

C.   Audit Plan.

Coalition Plaintiffs also join the Curling Plaintiffs in seeking an order

requiring the State Defendants to develop an audit plan "based on well-accepted

audit principles that assure a high probability that incorrect outcomes will be

detected and remedied."   (Coalition Motion, ¶ 5). Coalition Plaintiffs' Motion

also anticipates that the State Defendants will file an audit plan ("the Proposed

Audit Plan") after the Court's entry of an order granting injunctive relief. (*Id.*).

Coalition Plaintiffs' proposed relief contains additional substantive terms

and procedural steps relating to the Proposed Audit Plan focused on the

workability and effectiveness of the post-election audits. On the substance of the

Proposed Audit Plan, Coalition Plaintiffs would require that the Proposed Audit

Plan address the remediation of discrepancies detected in the audit process.

Remediation is not addressed in the Georgia statute that is the reference point of

Curling's Motion, O.C.G.A. §21-2-498. Coalition Plaintiffs' Motion accordingly

provides that the Proposed Audit Plan "include instructions to the county election

superintendents to address errors or irregularities detected in the post-election

audit, including instructions on escalating the audit, further investigation of errors,

and the method of correcting error." (Coalition Motion, ¶ 5). Coalition Plaintiffs

also make explicit the requirement (implied in the Curling Plaintiffs' motion) that audits begin on all elections after January 1, 2020. (Coalition Motion, ¶ 4).

As to the post-injunction procedure for approving the Proposed Audit Plan, the State Defendants should file the Proposed Audit Plan within 14 days (not 21), since such a plan should currently be in development, permit the Plaintiffs to respond to the Proposed Audit Plan, and that the Court, after a hearing if necessary, "determine the adequacy of the Proposed Audit Plan." (Coalition Motion, ¶ 6).

D.   Ballot Secrecy

In their Brief, the Curling Plaintiffs correctly note that "Dominion's election management system" permits "the secrecy of the ballot box to be compromised." (Doc. 619-1 at 11, 12). The Curling Plaintiffs do not, however, seek any relief relating to ballot secrecy — the banning of the Dominion BMDs does not address the currently known violations of ballot secrecy because the electronic records that compromise ballot secrecy reside elsewhere in Georgia's Dominion Voting System, -- Dominion's scanners. The Coalition Plaintiffs accordingly seek an order directing Defendants "to take all necessary action to ensure that there is no information recorded on any electronic record . . . that, alone or in combination

with other records or information, may be used to identify the individual who cast a particular ballot." (Coalition Motion, ¶ 7).

Coalition Plaintiffs also seek to require the Secretary to file, within 21 days of the entry of this Court's Order, a report ("the Ballot Secrecy Report") describing the actions taken to comply with this provision, to permit Plaintiffs to respond, and for the Court, after a hearing if necessary, to determine whether further relief is merited." (Coalition Motion, ¶ 8).

E. Paper Copies of Pollbooks

The Curling Plaintiffs do not seek relief relating to electronic pollbooks. The Coalition Plaintiffs seek an order that would require paper copies of pollbooks, updated after early voting, to be placed in every polling location, and to use the paper back-up of the pollbook "to adjudicate voter eligibility and precinct assignment problems." (Coalition Motion, ¶ 9).

F. Epollbook Review, Report and Remediation

Georgia's Dominion Voting System will use the "KNOWink PollPad Plus electronic pollbook" (the "PollPad Electronic Pollbook"). Use of the PollPad Electronic Pollbook carries with it serious existing threats and brings new risks of voter disenfranchisement and voting system security. As to existing threats, the

Coalition Plaintiffs seek to require the Secretary to file, within 21 days of this Court's Order, an Electronic Pollbook Report that "addresses actions taken to date or that will be taken to ensure that past operating problems with the Diebold ExpressPoll do not recur in the PollPad Electronic Pollbooks." (Coalition Motion, ¶ 10(a)).

Defying security protocols and common sense, the new PollPad Electronic Pollbooks communicate via wi-fi and Bluetooth, introducing a new security threat, particularly given the State Defendants' resistance to paper backups of accurate pollbooks. The Coalition Plaintiffs accordingly seek to require the State Defendants to include in the PollPad Electronic Pollbook Report a description of "operational problems of encountered with the PollPad Electronic Pollbooks in the 2019 pilot elections" and "polling place security of the voter registration database and the pollbook data during early voting and Election Day voting, particularly focused on wi-fi and Bluetooth connections of voting system components in the polling place." (Coalition Motion, ¶ 10(b) and (c)).

G. Compliance Hearing

Both sets of Plaintiffs seek relief requiring the State Defendants to replace BMDs with the Court-ordered backup plan consisting of hand marked paper

ballots. Both sets of Plaintiffs also seek relief requiring the State Defendants,

following the Court's granting of injunctive relief, to file plans that are vital to the

security and integrity of 2020 elections. The Coalition Plaintiffs believe that it

would be prudent to build into the initial injunctive relief procedures for

monitoring and assessing the State Defendants' compliance with the actual

deployment of the backup plan and to determine whether and to what extent the

State Defendants' development of audit plans, assessment of ballot secrecy, and

analysis of epollbook issues merits further relief. The Coalition Plaintiffs' motion

therefore anticipates that the Court, either separately or in conjunction with any

hearing on any of the proposed Plans, hold a hearing, and if necessary, take

evidence, on the State's compliance with all terms of this Order and determine if

additional relief is merited.   (Coalition Motion, ¶ 13(b)).

The request for an additional hearing to address the State Defendants'

compliance would also allow the parties, and the Court, to focus in the first hearing

upon the question of the constitutionality of BMDs and, in the second hearing,

upon the adequacy of the State's plans for audits, ballot secrecy, and epollbook

reliability and security. This sequencing would also give the State more time to

implement the injunctive relief granted relating to the BMDs.

II.   STANDING

In *United States v. Hays,* 515 U.S. 737, 742-43 (1995), the Court set forth

the three elements to determine standing:

> First, the plaintiff must have suffered an injury in fact—an invasion of
> a legally protected interest that is (a) concrete and particularized, and
> (b) actual or imminent, not conjectural or hypothetical. Second, there
> must be a causal connection between the injury and the conduct
> complained of . . . . Third, it must be likely, as opposed to merely
> speculative, that the injury will be redressed by a favorable decision.¶

Coalition Plaintiffs' First Supplemental Complaint ("FSC") contains

detailed allegations of each of these elements of standing applied specifically to the

new causes of actions.   FSC, Doc. 601 at ¶ 202-208 (addressing imminent injury

in fact, causation and redressability). In addition, the four individual Coalition

Plaintiffs ("Member Plaintiffs") have each submitted declarations with this Motion

describing the imminent injuries that will be caused by the Defendants and

redressed by injunctive relief.). *See* L. Digges Decl. (Ex. F); W. Digges III Decl.

(Ex. G); R. Davis Decl. (Ex. E); M. Missett Decl. ¶¶ (Ex. D). As before in this

case, each of Member Plaintiffs have standing. *See Curling v. Kemp,* 334 F. Supp.

3d 1303, 1314 (N.D. Ga. 2018). *Stewart v. Blackwell,* 444 F.3d 843, 855 (6th Cir.

2006) ("The increased probability that their votes will be improperly counted based

on punch-card and central-count optical scan is neither speculative nor remote.").

The Member Plaintiffs also have standing to challenge the Defendants breach of their rights to ballot secrecy, which "has been recognized as one of the fundamental civil liberties of our democracy." *Anderson v. Mills*, 664 F.2d 600, 608 (6th Cir. 1981). In addition, the Member Plaintiffs have standing to challenge State Defendants' voter registration and pollbooks which this Court has found "present and imminent threat to voters' exercise of their right to vote." (Doc. 579 at 149). Some Member Plaintiffs feel that Georgia's Dominion Voting System is such a threat to their right to vote that they are being forced to vote by mail in upcoming elections in order to protect their voting rights, which is also an injury. FSC, Doc. 601 at ¶ 204. *See Common Cause/GA.*, 554 F.3d at 1340, 1351-52 (11th Cir. 2009).

Coalition Plaintiffs seek that the Court enjoin State Defendants to use hand-marked paper ballots as the primary voting system in future elections; enjoin the use of ballot timestamps, ballot sequence numbers and other electronic records that permit the ballot to be connected to the voter; and enjoin the Defendants to provide updated paper pollbooks in case the electronic pollbooks malfunction. Each of these remedies would redress the injuries Member Plaintiffs face, and so each Member Plaintiff has standing to see this relief.

Plaintiff Coalition for Good Governance has associational standing through the Member Plaintiffs because (1) the Member Plaintiffs have standing to sue in their own right, as shown above, (2) the interests at stake are germane to the Coalition's purpose of advancing constitutional liberties, with an emphasis on protecting voting rights, and (3) the claims asserted and relief requested do not require individual participation of Member Plaintiffs, all of which the Court has already determined. *See Curling* at 334 F. Supp. 3rd at 1319; FSC, Doc. 601 at ¶¶ 210 – 215 (allegations relating to association standing).

Additionally, the Coalition also has organizational standing for the injuries it faces. The Defendant's planned use the BMDs has and will continue to force Coalition to divert personnel, time, and resources to educating its members and the voting public about how to protect their rights to cast a secret ballot and an equally effective vote in the upcoming elections using BMDs. FSC, Doc. 601 at ¶¶ 216 – 220) (allegations relating to organizational standing). The Defendant's planned use of the BMDs will impair Coalition's ability to engage in the organization's other projects by forcing it to divert resources to counteract the Defendants' illegal acts. The injunction sought against Defendants will redress these injuries by

enjoining the use of the BMD component of Georgia's Dominion Voting System.

(M. Marks Decl. (Ex. F)).

IV. COALITION PLAINTIFFS ARE ENTITLED TO INJUNCTIVE RELIEF

A. Ballot Marking Devices

1. *Likelihood of Success on the Merits*

This Court concluded its September 17, 2018 decision with the following

direction to the State Defendants:

> The 2020 elections are around the corner. If a new balloting system is
> to be launched in Georgia in an effective matter, it should address
> democracy's critical need for transparent, fair, accurate and verifiable
> election processes that guarantee each citizen's fundamental right to
> cast an accountable vote.

Curling, 334 F. Supp. 3d at 1328. The Dominion BMDs do not allow citizens to

"cast an accountable vote" and their use must be enjoined.

Dominion BMDs produce a printed ballot that contains human readable text

of a summary of the voter's choices, and a QR code, which is not human readable.

It is the QR code, and not the human readable text, that is scanned and tabulated by

the system. The Dominion BMD accordingly forces voters to cast ballots that

they cannot read or verify. (*See* FSC, Doc. 601 ¶ 99 - 107). In addition, most

voters will lack the memory and cognitive skills to verify that the human-readable

text summary is accurate. Yet, unless every voter accurately verifies his or her

complete ballot, BMD elections are unauditable and the ballot cards are not

uniformly reliable as records of voter intent. (FSC, Doc. 601 ¶ 116).

Like the touchscreen DRE machines, the Dominion BMDs do not produce

an accountable vote or auditable results. Only hand marked paper ballots using

optical scanners to tabulate votes allow an effective post-election audit to be

accomplished by comparing the reported election results to a statistically valid

sample of the hand marked paper ballots themselves—the original source

document of each voter's transaction, *independent* of any electronic interpretation.

With DREs, meaningful recounts or post-election audits are impossible

because voting on DREs leaves no independent or accountable record of voters'

choices. BMDs share the same security issues and operate similarly to touchscreen

DREs, except that the BMD interprets the voter's screen input and generates a

printed bar code, while the paperless DRE records the screen input directly into

electronic memory. In both cases, a computer is between the voter and the ballot,

and the voter cannot verify that the machine accurately recorded his or her vote.

An effective post-election audit cannot be performed on BMD-generated

results because the only records of voters' choices (computer-generated barcodes and printed ballot summaries) are not independent of the electronic voting system software. Instead, they are unverified secondary records generated by computers—not by the voter. Both DREs and BMDs lack the required auditable paper record of the original vote cast.

Coalition Plaintiffs have filed in support of this Motion the Declaration of Philip Stark, the inventor of the risk limiting audit. Dr. Stark concludes that "BMDs are essentially as vulnerable as the DRE machines they would replace, despite the fact that BMDs generate a 'voter-verifiable' paper trial." (Stark Decl., Ex. A, ¶ 2). Dr. Stark explains that audits of BMD election results cannot "reliably detect whether software bugs, errors, or hacking altered the reported election results." (*Id.* ¶ 4). This is in part because the audit trail generated by a BMD itself "is vulnerable to malfunction," and an audit cannot detect whether malfunctioning BMDs corrupted the paper trail.

Defendants' position is that individual voters will have the opportunity to review the computer-generated text on the paper record of their purported choices to confirm the machine's recording accuracy. But this will not create an *auditable* record. It is an unreasonable burden on voters to require them to undertake the

difficult process to check the machine accuracy for a long and complex ballot.

Though voters themselves may catch some kinds of BMD malfunction, "[r]esearch

shows that relatively few voters do check, and that they are not good at it." (*Id.* ¶

13). In his declaration, Kevin Skogland[6] explains the problems with human

readable Dominion BMD ballot summaries in detail. (K. Skogland Decl., Ex. B, at

¶ 32-37). For example, ballot resolutions are seldom summarized in a way that a

voter can recognize the question or remember his or her vote. And, even if the

"vast majority of voters caught and corrected errors in their printout, outcomes as

reflected in the BMD paper trail could be wrong, because some contests are

decided by small margins." (Stark Decl., Ex. A, ¶ 11).

The reliance on voters to verify the accuracy of the BMD ballots is

extremely problematic for a number of additional reasons. For example, if a voter

notifies an election official of problems with a BMD, "there is no mechanism to

translate that into remedial action beyond giving voters who complain another

chance to mark a ballot." *(Id.* at ¶ 12). Further, if "election officials take voter

complaints of BMD malfunctions seriously, their only recourse is to hold a new

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[6] Mr. Skogland is an Elections Security Researcher, Chief Technologist for Citizens for Better Elections, and Senior Technical Advisor, National Election Defense Coalition.

election. That would make the whole election vulnerable to 'crying wolf.'" *(Id.* at

¶ 14).

This case presents the Court with another "officially-sponsored election

procedure which, in its basic aspect, [is] flawed." *Duncan v. Polythress,* 657 F.2d

691, 703 (5th Cir. Sept. 28, 1981). As with the State's continuing use of the DREs,

the "threatened, ongoing injury here is an irreparable injury — one that goes to the

heart of the Plaintiffs' participation in the voting process and our democracy."

(Doc. 579 at 131). The State has no interest, much less a compelling interest, to

use BMDs instead of truly verifiable hand-marked paper ballots. For these

reasons, there is a substantial likelihood that Plaintiffs will succeed on the merits of

their claims that Dominion BMDs are unconstitutional.

2. *Balance of the Equities and Public Interest*

Here, the "threatened injury to Plaintiffs outweighs whatever damage the

proposed injunction may cause the Defendants" and an injunction would not be

"adverse to the public interest." *(Id.).* The proposed injunction here would not

cause damage to the Defendants. The Defendants are already obligated by this

Court's August 2019 Order to develop a backup plan to deploy hand marked paper

ballots using Dominion's system. If the Defendants are in full and good faith

compliance with that Order, Defendants should be ready and able to use hand-marked paper ballots instead of Dominion BMDs in the next election.

The State Defendants, again, have no equities here. In selecting BMDs, the State Defendants ignored the advice of the only computer scientist on the SAFE Commission, Dr. Wenke Lee, the unanimous opinion of twenty-four leading election and cybersecurity experts,[7] and the repeated warnings of the Coalition Plaintiffs in this litigation.[8]

In addition, even if Defendants were not already under a Court order and had not ignored the experts' advice, there is substantial evidence in the record that switching to hand marked paper ballots will not cause Defendants harm. Hand marked paper ballots are used across the nation in approximately 112,000 precincts covering 133 million registered voters. (A. McReynolds Decl., Doc. 413 at 223-24 n. 1). According to Ms. McReynolds: "This hand marked paper ballot and scanning method of balloting is the most widely accepted voting method in the nation." (*Id.* at 224); *see also* Hoke Decl., Doc 413 at 255.

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[7] *See* Doc. 351 at 17 (January 7, 2019 Letter to Secretary Crittenden from twenty-four experts).

[8] *See* Doc. 351 at 22 (March 24, 2019 Letter to State Defendants' counsel) and Doc. 351 at 49 (April 1, 2019 Letter to State Defendants' counsel).

With respect to logistics of transitioning to hand-marked paper ballots, the Coalition Plaintiffs filed declarations in support of their prior motion for preliminary injunction from three experts with substantial experience managing or monitoring transitions to hand-marked paper ballot systems. (Doc. 413 at 237 (C. Hoke); *id.* at 219 (A. McReynolds; *id.* at 270 (V. Martin)). All concur that the transition using the existing Diebold system is feasible. (*E.g.,* V. Martin Decl., Doc. 413 at 274 ("[I]t is my opinion that in Georgia an immediate switch to hand-marked paper ballots using the optical scanning capabilities of its current voting system is feasible, economical and essential for fair elections.").

"[O]nce a State's [election-related] scheme has been found to be unconstitutional, it would be the unusual case in which a court would be justified in not taking appropriate action to insure that no further elections are conducted under the invalid plan." *Reynolds v. Sims,* 377 U.S. 533, 585 (1964). For the foregoing reasons, and for the reasons set forth in the Curling Plaintiffs' Memorandum, the State Defendants should be directed to conduct all elections after January 1, 2020 using hand-marked paper ballots as the primary method of recording the electors' votes.

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B.   Election Management System and Scanners

As explained above in Part II, because of the uncertainty as to whether the

constitutionally compliant elements of Georgia's Dominion Voting System can be

deployed on time for use with hand marked paper ballots beginning with January

2020 elections, the relief that the Coalition Plaintiffs seek would give the State

Defendants the flexibility to use the Dominion election management system and

scanners[9] *or* the State's currently certified Diebold GEMS system and AccuVote

scanners. Both systems can generate auditable results.

C.   Meaningful Post-Election Audits

Should the Court grant Plaintiff's requested relief requiring that all elections

beginning January 1, 2020 use hand marked paper ballots, all election results

should be audited using methods that have a high likelihood of detecting an

inaccurate outcome.   In its August 15, 2019 Order, this Court ordered the State

Defendants to "promptly file with the Court all proposed and final audit

requirements that the State Elections Board and Secretary of State's Office

considers or approves in connection with elections to be held in 2020 or

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[9] Under Coalition Plaintiffs' requested relief, Dominion's equipment, including its scanners, may
not be used if they violate ballot secrecy, discussed below.

thereafter." (Doc. 579 at 152). State law, however, does not require the State

Defendants to perform even superficial audits until November 2020,[10] and there is

no indication from the State Defendants that they have any intention of filing any

audit plans with the Court before the 2020 elections, which are anticipated to begin

in January.

To ensure that the State Defendants take timely action to develop audit plans

for hand marked paper ballots, Coalition Plaintiffs have moved the Court to order

the State Defendants to file a Proposed Audit Plan within 14 days of the entry of

the Court's Order, describing the specific steps the State Defendants intend to take

to comply with the terms of the Court's Order and to institute pre-certification,

post-election, manual tabulation audits of hand marked paper ballots to verify the

election results. The Proposed Audit Plan should be based on well-accepted audit

principles that assure a high probability that incorrect outcomes will be detected

and remedied, and include instructions to the county election superintendents to

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[10] As the Court noted in its August 15, 2019, O.C.G.A. 21-2-498 provides "some manner of auditing to evolve over the years." (Doc. 579 at 139). The statute authorizes, but does not require, the State Election Board to promulgate rules relating to audits. O.C.G.A. 21-2-498(d). In their only meeting this year, the State Election Board did not discuss audits. https://sos.ga.gov/index.php/elections/2019_seb_transcribed_hearing_minutes.

address errors or irregularities detected in the post-election audit, including

instructions on escalating the audit, further investigation of irregularities, and the

method of correcting errors. Coalition Plaintiffs' Motion also would give Plaintiffs

the opportunity to respond to the Proposed Audit Plan and for the Court, after a

hearing if necessary, to determine its adequacy. (Coalition Motion, ¶ 6).

D.   Ballot Secrecy

1.   *Ballot Secrecy - Background facts*

Dominion ImageCast scanners used for in-person voting violate ballot

secrecy by recording the time and sequence of the ballots cast on the scanner.

Dominion ImageCast ballot scanners, which are used for both hand marked paper

ballots and BMD ballot cards, record these ballot time stamps and sequence

numbers in multiple ways, including through Dominion's "AuditMark" feature and

through other metadata collected by the scanner. Dominion scanners thereby create

a unique and identifiable ballot for each in-person voter because every voter's

ballot can be identified by comparing those time *or* sequence records to pollbook

entries, poll worker observation, poll watcher or public observation or video

security camera footage from the polling place.

AuditMark, a Dominion scanner software application installed on all

ImageCast scanners, uniquely marks "[e]very single ballot in the election." (RFI at

11). According to the *State of Georgia Request for Information: New Voting*

System, Dominion Voting, Aug 24, 2018)[11] when an elector casts her ballot into the

scanner, the ImageCast records a full image of the ballot. The AuditMark software

then stamps a label onto that image that includes numbered IDs representing "the

tabulator, batch, and sequence number within the batch, which corresponds to the

physical ballot in the stack," and also a visible time stamp recording the exact

moment the ballot was cast and scanned. The ballot image with the AuditMark

label is saved (unencrypted) to removable Compact Flash memory cards ("CF

cards"), uploaded to the election management system, and retained. Dominion's

documentation illustrates the AuditMark label with an image of a scanned ballot

including the visible label marking it as "Ballot ID: 2" which was "scanned at

14:31:37 on 02/09/14." Dominion misleadingly claims that this data in the

AuditMark label "is never tied to the voter."[12]

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[11] https://sos.ga.gov/admin/files/Dominion%20RFI_No%20Redactions.pdf, at 16.

[12] *Id.* at page 11.

But the AuditMark labels *do* easily tie every in-person ballot to the voter who cast it. Because AuditMark labels ballots in sequential order, the example "Ballot ID: 2" was cast by the second person to cast their ballot on that scanner that day. Voter order is generally easy to determine. Any person can observe the voters in the polling place and decipher what their scanned Ballot ID numbers will be. Long after the election, it is still easy to retroactively determine many electors' Ballot IDs by checking pollbook logs or video security records. Each precinct also creates a publicly available "Numbered Voter List," which logs each in-person voter in the order they checked-in to vote, as required by O.C.G.A. § 21-2-431. On low turnout days, which occur frequently in early voting, the voter check-in order and ballot casting order would be identical. Putting the Numbered Voter List alongside the ballots sequentially numbered by AuditMark would immediately put a name to every ballot in cases where voters are casting their ballots in the same order in which they checked in.

Likewise, the time stamp added by AuditMark can be used to easily thwart an elector's secret ballot. In the example in Dominion's documentation, the ballot was cast by the person who fed their ballot into the scanner at exactly 2:31pm and 37 seconds. By merely noticing the time, any observer would know exactly which

ballot to look for to find how that elector voted. And again, all the ballot time stamps can be combined with other public, readily available information to systematically de-anonymize every ballot. In sum, the time stamps and Ballot IDs added by AuditMark make the votes only slightly more secret than if AuditMark simply printed each electors' name onto their ballot.

Egregiously, AuditMark stamps identifying information right onto the ballot image, but the ImageCast scanners also save the same dangerous data elsewhere in metadata, logs, and file structure. For example, when the unencrypted ballot images are transferred from the CF cards to the election management system, they are "randomized" so that "the ballot images are de-coupled from voter order." (Marks Decl. (Ex. C), Ex. 1, at 30). But this means the ballot images saved on the removable CF cards *are* saved in voter order and are *not* de-coupled from the voter order. Anyone with access to the CF cards, including pollworkers, officials, or hackers[13], could look at the voter scanning order and learn every elector's vote. Additionally, AuditMark works in conjunction with other parts of the ImageCast scanners, and so those components too are likely to contain identifying

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[13] This year at the hacker convention DEFCON, found that the CF cards were easily accessible with a specialty screwdriver available at a nearby hardware store. (Doc. 619, Exhibit 9).

information. AuditMark is designed so that even if the ballot images are "mixed after scanning," they can still be correlated back to the "digital Cast Vote Record data."[14] Id at 11. The Cast Vote Records would need to contain the same Ballot ID or time stamp to make that correlation possible. Therefore, it is clear that the Cast Vote Records could also be independently used to deny elector's their secret ballot rights. Through any of this ballot scanner data, the right to a secret ballot in Georgia would be violated. Dominion's own documentation has provided this information prior to discovery which may reveal further sources of potential for ballot secrecy violations.

2.   *Ballot Secrecy - likelihood of success on the merits*

As discussed above, Georgia's Dimension Voting System (whether BMD ballots or hand-marked paper ballots are in use) violates ballot secrecy in multiple ways. This violation of ballot secrecy places a substantial burden on the right to vote which is not narrowly tailored to meet a legitimate state interest and, indeed, has no justification at all. *See Anderson v. Celebrezze*, 460 U.S. 780, 789 (1983); *Burdick v. Takushi*, 504 U.S. 428, 434 (1992).   When the right to a secret ballot is

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[14] As noted before, Dominion does take some minor steps to randomize ballot images in order to preserve ballot secrecy. AuditMark apparently negates Dominion's own, meager efforts.

violated, the burden, and injury, first occurs when the voters, before making their

ballot choices, must pause to consider whether the disclosure of their choices will

subject them to ridicule or retribution. The retribution or ridicule itself is not the

only harm, but the concern caused by such potential creates an unreasonable

burden on the voter. The right to a secret ballot "has been recognized as one of the

fundamental civil liberties of our democracy." *Anderson v. Mills,* 664 F. 2d 600,

608 (6th Cir. 1981). The secret ballot is a vital tool to "lessen[] the evils of

violence, intimidation, bribery and other corrupt practices which can be incumbent

in non-secret elections." *Id.*

The violation of ballot secrecy separately violates the Equal Protection

Clause because it treats different persons differently, i.e., voters who vote in person

as compared to voters voting absentee. *See Bush v. Gore*, 531 U.S. 98, 104-05

(2000). It violates procedural due process, because it deprives voters of the right to

secrecy guaranteed to them by Georgia law, without due process. And it violates

the federal right to ballot secrecy, which even the State Defendants have

recognized:

> The United States Supreme Court has also recognized the
> necessity of the secret ballot to prevent electoral abuses
> and its prevalence in all 50 states. *Burson v. Freeman,* 504
> U.S. 191, 206-07 (1992). Indeed, "[s]ociety has a strong

interest in encouraging all individuals, even the most timid, to vote." *In re Dinnan,* 661 F.2d 426, 432 (5ᵗʰ Cir. Unit B 1981). State Defendants therefore object to this request for protected information on the basis that disclosure of cast vote images would destroy the secrecy of the ballot maintained by the Constitution of Georgia and recognized by the Supreme Court.

(Doc. 369 at 22).

See McIntyre v. Ohio Elections Comm'n, 514 U.S. 334, 343 (1995) ("the freedom to publish anonymously extends" to political advocacy and is "perhaps best exemplified by the secret ballot.").

Defendants may take the position that ballot secrecy is not violated by Georgia's Dominion Voting System because the information is only available to election officials and pollworkers. If "only" election officials know how voters vote, the argument goes, so long as election officials do not disclose this information to members of the public, there is no violation of ballot secrecy. To the contrary: ballot secrecy, if it means anything, means that no one, not the State, not the local county election official, not the voter's neighbor or employer, and not some internet hacker or data thief, will have access to information as to how a voter voted. A voter's right to cast her ballot freely without fear of ever being called on to answer for that vote is violated when she must pause and attempt to

evaluate whether election officials can or will keep her ballot confidential. The

standard is "absolute secrecy" not officials' adherence to "confidentiality."

3. *Ballot Secrecy - Balancing of the Equities*

An order requiring the State Defendants to ensure that there is no

information recorded on any electronic record that may be used to identify the

individual who cast a particular ballot would not be difficult for the State

Defendants to follow. The State Defendants may restore ballot secrecy by

requiring Dominion to change the software to suppress all time stamp markings

and AuditMark recording of time and sequence of ballots cast . The scanners are

under warranty so that Dominion must keep the machines operating in accordance

with the mandatory requirements of machines, which includes preserving the secret

ballot. (Marks Decl. (Ex. C) ¶ 5, Contract 4.2). Switching back to AccuVote

scanners with the GEMS system would also solve the problems. Or the State can

collect ballots in a secure box and shuffle the ballots in the polling place before

Dominion ImageCast scanning.

Even if protecting ballot secrecy were more difficult, the equities would still

balance in favor of granting equitable relief because the State of Georgia itself has

a compelling state interest in protecting ballot secrecy. The Georgia Constitution

provides that elections "shall be by secret ballot." Ga. Const. art. II, § 1 ¶ 1.

Consistent with this Constitutional mandate, state law provides that the county

superintendent shall "conduct all elections in such manner as to guarantee the

secrecy of the ballot and to perform such other duties as may be prescribed by

law;" O.C.G.A. § 21-2-70(13). O.C.G.A. § 21-2-373 states: "The Secretary of

State, in specifying the form of the ballot, and the State Election Board, in

promulgating rules and regulations respecting the conduct of elections, shall

provide for ballot secrecy in connection with write-in votes."

The long-standing protection of the secret ballot for optical scanning
provides:

> No optical scanning voting system shall be adopted or used unless it shall, at
> the time, satisfy the following requirements:
> (6) It shall permit voting in ***absolute secrecy*** so that no person can see or
> know for whom any other elector has voted or is voting, save an elector
> whom he or she has assisted or is assisting in voting, as prescribed by law;

O.C.G.A. §21-2-365 (emphasis added).

Georgia election regulations are in accord. *See* Ga. Comp. R. & Regs. 183-

1-11-.01 ("Each Superintendent of Elections shall ensure that handicapped persons

casting their vote at the polls are able to do so in private by providing such

facilities and equipment as necessary to maintain the secrecy of the ballot."); Ga.

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Comp. R. & Regs. 183-1-14-.07 (providing that a "spoiled ballot" includes a ballot "that contains writing which compromises the secrecy of the ballot.").

For the foregoing reasons, the equities tip in favor of granting injunctive relief.

E.   Updated Paper Pollbook Backups

In its August 15, 2019 Order, this Court found that the "voter database problems extensively identified" in this case "present an imminent threat to voters' exercise of their right to vote." (Doc. 579, at 149). The Court quoted the findings of the National Academies of Science Report "detailing the various methods in which contamination of voter registration data and electronic pollbooks used in conjunction with voting systems disrupts elections and its recommendation that all jurisdictions using electronic pollbooks 'should have backup plans in place to provide access to current voter registration lists in the event of any disruption. (NAS Report 72)." (Doc. 579, at 149 n.101). As detailed by Coalition Plaintiffs' Rule 59(e) Motion to Alter or Amend Judgment (Doc. 605) and supporting briefs, (Doc. 605-1 and 621), State Defendants appear to be taking no meaningful action to avoid recurrence of voter disenfranchisement because of defective voter registration and erroneous pollbook records.

Coalition Plaintiffs again move that the Court require the State Defendants to order counties to provide in every polling place paper copies of pollbooks, updated after early voting, for use in adjudicating polling place eligibility problems. Coalition Plaintiffs incorporate herein the facts and allegations in Section III of their Brief of Support of Rule 59(e) Motion to Alter or Amend Judgment, (Doc. 605-1 at 12) and Section III of their Reply in Support of Rule 59(e) Motion to Alter or Amend Judgment (Doc. 621 at 14).

There is no reason to believe that the systemic problems with epollbooks will disappear with the transition to a new electronic pollbook component system. If anything, the rapid transition to a new epollbook system and the integration challenges will make these problems more severe.   Even though this Court did not grant this relief in response to Coalition Plaintiffs' Rule 59(e) motion, such relief is appropriately granted with this Motion.

F.   Pollbook and Voter Registration Accuracy and Security Remediation

In its August 15, 2019 Order, the Court ordered that the State Defendants create a plan to address the ongoing voter registration and pollbook discrepancies for implementation by January 3, 2020. (Doc. 579 at 149). But State Defendants appear to be taking no steps to improve the security or accuracy of the voter

registration data that feeds the electronic pollbooks, or to improve the accuracy of

the electronic pollbook data or operation of such pollbooks. Despite the ongoing

November elections, and the fast approaching January 3, 2020 implementation

date, no plan has been prepared or shared with Plaintiffs. Further, the

implementation of the new PollPad pollbook system – which uses wi-fi and

Bluetooth communications - appears to be proceeding with little consideration

given to election security, or analysis of what root causes generated the

discrepancies in the Diebold ExpressPollbook, or polling place cybersecurity risks.

To avoid the predictable continuation of such disenfranchising problems, Coalition

Plaintiffs seek relief in the form of an Order from the Court requiring the

preparation of an "Electronic Pollbook Report," within 21 days of this Court's

Order, that "addresses actions taken to date or that will be taken to ensure that past

operating problems with the Diebold ExpressPoll do not recur in the PollPad

electronic pollbooks," "describes any operational problems of encountered with the

PollPad electronic pollbooks in the 2019 pilot elections," and describes the polling

place security of the voter registration database and the pollbook data, "particularly

focused on wi-fi and Bluetooth connections of voting system components in the

polling place."

For the foregoing reasons, Coalition Plaintiffs' Motion for Preliminary

Injunction should be granted.

Respectfully submitted this 23rd day of October 2019.

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Laura Digges, Ricardo Davis	
& Megan Missett	

IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

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DONNA CURLING, ET AL.,
Plaintiffs,

v.

BRAD RAFFENSPERGER, ET AL.,
Defendants.

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Civil Action No. 1:17-CV-2989-AT

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CERTIFICATE OF COMPLIANCE

Pursuant to LR 7.1(D), I hereby certify that the foregoing document has

been prepared in accordance with the font type and margin requirements of LR 5.1,

using font type of Times New Roman and a point size of 14.

/s/ Bruce P. Brown
Bruce P. Brown

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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, ET AL., **Plaintiffs,** **v.** **BRAD RAFFENSPERGER , ET AL.,** **Defendants.**	**Civil Action No. 1:17-CV-2989-AT**

CERTIFICATE OF SERVICE

I hereby certify that on October 23, 2019, a copy of the foregoing was

electronically filed with the Clerk of Court using the CM/ECF system, which will

automatically send notification of such filing to all attorneys of record.

/s/ Bruce P. Brown
Bruce P. Brown

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IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, ET AL.,   )
)
    Plaintiffs,   )
)   **CIVIL ACTION**
  vs.   )
)   **FILE NO. 1:17-cv-2989-AT**
BRAD RAFFENSPERGER,   )
  ET AL.,   )
)
    Defendants.   )

COALITION PLAINTIFFS' MOTION FOR PRELIMINARY INJUNCTION

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B. Kevin Skoglund

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D. Megan Missett

E. Ricardo Davis

F. Laura Digges

G. William Digges

EXHIBIT

A

**IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

DONNA CURLING, et al.	)
	)
Plaintiff,	)
	)
vs.	) **CIVIL ACTION FILE NO.: 1:17-cv-**
	) **2989-AT**
BRAD RAFFENSPERGER, et al.	)
	)
Defendant.	)
	)

SECOND SUPPLEMENTAL DECLARATION OF PHILIP B. STARK

PHILIP B. STARK hereby declares as follows:

1. This statement supplements my statements of September 9, 2018, and September 30, 2018. I stand by everything in the previous declarations.

2. I understand that the State of Georgia proposes to deploy ballot-marking devices (BMDs) for all in-person voters. In my opinion, this will do little to improve election integrity in Georgia: BMDs are essentially as vulnerable as the DRE machines they would replace, despite the fact that BMDs generate a "voter-verifiable" paper trail. I shall explain why.

3. I understand that Defendants argue that a BMD-based system is auditable, and that therefore BMD-based voting systems are acceptable. The premise is misleading and the conclusion is false.

4. Every system is auditable—to some extent. The question is not whether a BMD-based system can be audited in some sense. The question is what audits of BMDs can

accomplish, and in particular, whether they can reliably detect whether software bugs, errors, or hacking altered the reported election results. Audits of BMDs cannot.

5. This is in part because BMDs make the paper audit trail vulnerable to malfunctions. Bugs, misconfiguration, or malicious hacking can cause the BMD to print something other than the selections the voter made on the touchscreen or accessible interface. Hand-marked paper ballots do not have that vulnerability.

6. Audits of BMDs cannot reliably detect whether malfunctioning BMDs corrupted the paper trail. (I use the term *malfunction* generically to include problems due to bugs, configuration errors, and hacking.) This is true even if the malfunctions were severe enough to cause losing candidates to appear to win.

7. If an audit or inspection of a BMD happens to discover a malfunction, there is in general no way to tell whether the malfunction altered electoral outcomes, nor any way to determine the correct electoral outcomes.

8. Because a BMD-generated paper trail is not trustworthy, voting systems based largely on BMDs are not *strongly software independent.*[1]

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[1] See Rivest, R.L., and J. Wack, 2006. On the notion of "software-independence" in voting systems. https://people.csail.mit.edu/rivest/RivestWack-OnTheNotionOfSoftwareIndependenceInVotingSystems.pdf
(last visited 20 October 2019). A voting system is *strongly software independent* "if an undetected change or error in its software cannot cause an undetectable change or error in an election outcome, and moreover, a detected change or error in an election outcome (due to change or error in the software) can be corrected without re-running the election." Strong software independence is extremely desirable. Systems based on optically scanning hand-marked paper ballots (with reliable chain of custody of the ballots) are strongly software independent, because inspecting the hand-marked ballots allows an auditor to determine whether malfunctions altered the outcome, and a full manual tabulation from the paper ballots can determine who really won, without having to re-run the election. A risk-limiting audit of an election conducted using hand-marked paper ballots can guarantee a large chance of correcting the outcome if the outcome is wrong. In contrast, because BMD printout cannot be trusted to reflect voters' selections, auditors can only determine whether the BMD printout was tabulated accurately, not

9. Because a BMD-generated paper trail is not trustworthy, voting systems based largely on BMDs cannot support *evidence-based elections*.[2]

10. Only voters are in a position to catch some kinds of BMD malfunction. There is no other mechanism. No feasible amount of parallel or "live" testing or auditing can offer a reasonable chance of catching outcome-changing errors.[3]

11. Even if the vast majority of voters caught and corrected errors in their printout, outcomes as reflected in the BMD paper trail could be wrong, because some contests are decided by small margins.[4]

12. Even if voters notify pollworkers of problems, the way elections are conducted in Georgia (and the rest of the U.S.), there is no mechanism to translate that into remedial action beyond giving voters who complain another chance to mark a ballot. That is partly because voters who observe a problem get no evidence they can show to anyone else to

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whether the election outcome is correct, nor can auditors determine the correct outcome. Elections conducted using BMDs are not strongly software independent because, if a BMD malfunction happens to be detected, there is no way to figure out what the correct electoral outcome is without re-running the election.

[2] See Stark, P.B., and D.A. Wagner, 2012. Evidence-Based Elections. *IEEE Security and Privacy, 10*, 33-41. https://doi.ieeecomputersociety.org/10.1109/MSP.2012.62 (last visited 22 October 2019) Evidence-based elections require election officials to produce convincing evidence that the reported winner(s) really won. That is not possible if a noticeable fraction of ballots are marked using BMDs. The draft of version 2.0 of the Voluntary Voting System Guidelines (VVSG 2.0) requires systems to be software independent and to support evidence-based elections. Draft Voluntary Voting System Guidelines, version 8, 19 September 2019 https://collaborate.nist.gov/voting/pub/Voting/VVSG20DraftRequirements/vvsg-2.0-2019-09-17-DRAFT-requirements.pdf (last retrieved 22 October 2019).

[3] See Stark, P.B., 2019. There is no reliable way to detect hacked ballot-marking devices. ArXiV, https://arxiv.org/pdf/1908.08144.pdf (last visited 20 October 2019).

[4] Stark, *op. cit.,* and Appel, A., R. DeMillo, and P.B. Stark, 2019. Ballot-marking devices (BMDs) cannot assure the will of the people, SSRN https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3375755 (last visited 20 October 2019).

demonstrate that there was a problem. Showing a pollworker or election official the BMD printout does not prove anything: it is the voter's word against the BMD output.[5]

13. Research shows that relatively few voters do check, and that they are not good at it.[6]

14. If pollworkers and election officials take voter complaints of BMD malfunctions seriously, their only recourse is to hold a new election. That would make the whole election system vulnerable to "crying wolf."[7]

15. For the reasons above, the reliance on BMDs in elections should be kept to a minimum, and hand marked paper ballots should be the primary voting technology. With luck, there will soon be voting technology that is more accessible and more meaningfully auditable than BMDs—technology that supports "evidence-based elections,"[8] as recommended by Principle 9, "Auditable," in the most recent draft of Version 2.0 of the U.S. Voluntary Voting System Guidelines.[9] Evidence-based elections are not possible if a noticeable percentage of ballots are marked using BMDs.

16. Unless the State of Georgia adopts rigorous post-election audits, including "compliance audits"[10] and risk-limiting audits (RLAs), using a voting system with a paper trail will not improve the trustworthiness of Georgia's elections at all.

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[5] Appel et al., *op. cit.*

[6] DeMillo, R., R. Kadel, and M. Marks. 2018. What Voters Are Asked to Verify Affects Ballot Verification: A Quantitative Analysis of Voters' Memories of Their Ballots, SSRN https://ssrn.com/abstract=3292208 (last visited 20 October 2019).

[7] Stark, *op. cit.,* Appel et al., *op. cit.*

[8] See note 2, *supra*.

[9] See note 2, *supra*.

[10] Stark and Wagner, op. cit.; Stark, P.B., 2018. An Introduction to Risk-Limiting Audits and Evidence-Based Elections, Prepared for the California Little Hoover Commission, https://www.stat.berkeley.edu/~stark/Preprints/lhc18.pdf (last retrieved 21 October 2019).

17. I drafted most of the language defining and explaining RLAs in Georgia's Act 24 (2019-HB316) §21-2-498 (a)-(d). Contrary to my recommendations, Act 24 does not require routine RLAs, only a pilot, which is not required until late 2021.

18. The audit requirements under HB 316 are seriously deficient. An audit could satisfy HB 316 and yet have no chance of discovering or correcting errors, even outcome-changing errors.

19. For instance, HB 316 does not require audits and recounts to be based on the human-readable marks on the paper trail. But a malfunctioning BMD could print barcodes that do not match the human-readable marks.[11] An audit based on the barcodes cannot possibly detect that.

20. HB 316 does not require audits to take any remedial action if they uncover errors in the electronic tally. Such "toothless" audits do little to ensure election integrity.

21. HB 316 does not require any auditing until November 2020. The presidential primary elections will take place sooner. Absent any auditing, the primaries will be vulnerable to outcome-changing errors and malfunctions that would have a large chance of being caught and corrected by a RLA.

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[11] A BMD can also print human-readable marks and barcodes that do not match what the voter saw on the touchscreen or heard through the audio interface.

I declare under penalty of perjury, in accordance with 28 U.S.C. § 1746, that the foregoing is true and correct.

       Executed on this date, October <u>22,</u> 2019.

                                            _____

                                             Philip B. Stark

EXHIBIT

B

IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, et al.	)	
Plaintiff,	)))	
vs.	))	**CIVIL ACTION FILE NO.: 1:17-cv-2989-AT**
BRAD RAFFENSPERGER, et al.	))	
Defendant.	))))	

DECLARATION OF KEVIN SKOGLUND

KEVIN K. SKOGLUND hereby declares under penalty of perjury, pursuant to 28 U.S.C. § 1746, that the following is true and correct:

1. I have personal knowledge of all facts stated in this declaration, and if called to testify, I could and would testify competently thereto.

Background and Qualifications

2. My name is Kevin Skoglund. I reside in the Commonwealth of Pennsylvania. I hold a Bachelor of Arts degree from Harvard University.

3. Since 2003, I have owned and operated Nova Fabrica, a company which engages in software programming, web development, digital security consulting, and training.

4. I have taught over 30 online courses for LinkedIn Learning, including several courses focused on digital security: "Programming Foundations: Web Security," "Web Security: User Authentication and Access Control," and "SSL Certificates for Web Developers."

5. I cofounded Citizens for Better Elections, a nonpartisan grassroots group advocating for resilient, evidence-based elections. I currently serve as the Chief Technologist.

6. I am the Senior Technical Advisor to the National Election Defense Coalition (NEDC). NEDC is a national organization working to secure elections technology by bring together experts in cybersecurity and elections administration, policymakers, NGOs, and concerned citizens to build bipartisan consensus on a comprehensive, cost-effective plan to secure the vote.

7. Since May 2017, I have been an active participant in the National Institute of Science and Technology (NIST) Voting System CyberSecurity Working Group. The purpose of the group is to provide security guidance for voting systems to inform the development of the U.S. Election Assistance Commission (EAC) Voluntary Voting System Guidelines (VVSG). For over two years, the CyberSecurity Working Group has been developing security guidelines and requirements for the next generation of voting systems.

8. I am one of the leaders of an election security group which identified and continues to track election systems connected to the internet, as reported in the Vice article, "Critical U.S. Election Systems Have Been Left Exposed Online Despite Official Denials," on August 8, 2019.[1]

9. I have engaged in coordinated disclosures of vulnerabilities in election systems with the EAC, the Elections Infrastructure Information Sharing and Analysis Center (EI-ISAC), the Department of Homeland Security (DHS), state governments, and voting system vendors.

10. I have written several online articles, listed below, about electronic ballot marking devices generating barcodes on ballots and how barcodes could be modified to represent new values.

    i. Deconstructing an ES&S ExpressVote Paper Record[2]

    ii. How the ExpressVote XL Could Alter Ballots[3]

    iii. How ExpressVote Barcodes Could Be Modified[4]

11. I collaborated with the University of Pittsburgh Institute for Cyber Law, Policy, and Security to conduct an analysis of voting system purchases

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[1] https://www.vice.com/en_us/article/3kxzk9/exclusive-critical-us-election-systems-have-been-left-exposed-online-despite-official-denials

[2] https://securiosa.com/posts/deconstructing_expressvote_records.html

[3] https://securiosa.com/posts/how_the_expressvote_xl_could_alter_ballots.html

[4] https://securiosa.com/posts/how_expressvote_barcodes_could_be_modified.html

across Pennsylvania's 67 counties.[5] Among our principal findings, we show that the average cost of voting systems where most voters machine-mark ballots was $24.20 per registered voter, while the average cost of systems which rely primarily on hand-marked paper ballots was $12.18 per registered voter, half the cost.

12. I serve as a Judge of Election in Montgomery County, Pennsylvania. The polling place I oversee uses a voting system manufactured by Dominion Voting Systems, Inc. ("Dominion"), configured so that most voters hand-mark a paper ballot and voters who want assistance use a ballot-marking device ("BMD"). The hardware and software is similar to the system being proposed for use in Georgia, but configured differently.

Proposed Voting System for the State of Georgia

13. It is my understanding that the State of Georgia is planning to adopt a paper-based voting system ("Georgia's Dominion Voting System") manufactured by Dominion, and intends for most voters to use an ImageCast X touchscreen computer configured as a BMD ("Dominion BMD") to create a ballot and to use an ImageCast Precinct optical scanner ("Dominion op-scan") to scan and to tabulate the ballot. This polling place configuration is often referred to as a "BMDs for all voters" style of voting ("BMDs-for-All").

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[5] https://www.cyber.pitt.edu/votingsystemsanalysis

14. It is my understanding that the State of Georgia is planning to adopt a system of electronic pollbooks ("Georgia's KNOWiNK Pollbook System") manufactured by KNOWiNK, LLC ("KNOWiNK"), and intends for all polling places to have Poll Pads ("Poll Pads") to determine the eligibility of voters and to sign them in prior to voting.

15. I have read the declaration of J. Alex Halderman filed on October 4, 2019, and I concur with all of the facts, expert opinions, and conclusions stated therein.

16. I have read the declaration of Philip B. Stark dated October 22, 2019, and I concur with all of the facts, expert opinions, and conclusions stated therein.

17. It is my opinion that Georgia's Dominion Voting System raises significant election security and integrity concerns. It would unnecessarily add risks which could prevent accurate election results from being generated, and cause irregularities and malfunctions to go undetected.

Availability and Resilience

18. The primary concern of BMDs-for-All is that a well-functioning computer becomes a prerequisite for marking a ballot and introduces a risk that it will be misconfigured, malfunction, or otherwise not be available.

19. "Resilience" is an important property of secure systems. Resilience is the ability of a system to deliver the intended functionality continuously, to manage any problem and to recover from it with minimal impact.

20. There are real-world examples where voting systems were not resilient. Voting machines failed to start, malfunctioned during an election, or lost power. There are examples where short-term risk-mitigation measures, such as backup power supplies and emergency/provisional paper ballots, failed or were exhausted.

21. The unavailability of data resources is referred to as a "Denial of Service" ("DoS"). If all BMDs in a polling place are inoperable it would result in a complete Denial of Service, likely resulting in turning away voters. If some BMDs are inoperable or intermittently malfunctioning it would result in a partial Denial of Service, likely resulting in longer or slower-moving lines to vote.

22. Long lines to vote are a security concern because they reduce the availability of the voting system to all voters who wish to use it. Long lines may discourage voters from casting a ballot and can be an intentional or unintentional form of voter suppression.

23. BMDs-for-All inherently causes longer and slower-moving lines compared to systems in which most voters hand-mark paper ballots, because the voting capacity of each polling place is limited to the number

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of BMDs deployed and each voter has exclusive use of a BMD while making their selections, which can be a time-intensive task. Systems with hand-marked paper ballots do not have a similar bottleneck because many voters can mark their selections in parallel.

24. BMDs-for-All is not resilient to the risk of long lines because there is no easy way to increase voting capacity, due to the fact that a BMD is a prerequisite for marking a ballot. Systems with hand-marked paper ballots can easily add more voting capacity by adding cardboard privacy screens or passing out clipboards.

Susceptibility to Errors

25. All BMDs incorporating touchscreen interfaces are vulnerable to errors due to touchscreen miscalibration. A voter may touch a preferred candidate and their vote will either not register or register for a different candidate ("vote flipping"). Touchscreen miscalibration errors decrease usability, reduce public trust in the election, and diminish overall confidence that voter intent is being captured accurately.

26. All BMDs are vulnerable to malfunction when printing a ballot. The printer may malfunction, run out of consumable supplies, or fail to print the entirety of the ballot.

27. All BMDs are vulnerable to Presentation Attacks, where the voter makes one selection but the BMD outputs a different selection on the paper

record. The success of a Presentation Attack depends on the voter not noticing the change and submitting the modified vote. Post-election audits will be unable to detect the discrepancy. The BMDs most vulnerable to Presentation Attacks are those with impediments to voter verification.

Concerns about Voter Verification

28. All BMDs require an addition verification action by voters to check that the BMD has marked the ballot correctly in order to ensure that a ballot to be cast was accurately marked by the machine. Checking the work of a computer should not be required of a voter and is not required when hand-marking a paper ballot.

29. While BMDs produce evidence of every vote, they produce weak evidence. Our judicial system is familiar with the notion that all evidence does not carry equal weight. BMD-generated ballots are only as strong as a voter's willingness and ability to verify the paper record for errors and to take effective action on any errors they find.

30. Several studies have shown that a significant number of voters do not verify machine-generated ballots carefully and do not detect errors.[6]

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[6] Rice University: https://www.usenix.org/system/files/jets/issues/jets-0101-greene.pdf
Georgia Institute of Technology: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3292208

31. In "Ballot-Marking Devices (BMDs) Cannot Assure the Will of the
    Voters,"[7] the authors—Andrew Appel, Richard DeMillo, Philip Stark—
    enumerate the many obstacles to reliable voter verification of machine-
    marked ballots. They explain that risk-limiting audits ("RLAs"), designed
    to limit the risk of an incorrect outcome, are incapable of limiting the
    risks introduced by BMDs-for-All. I concur with their analysis.

Problems with Ballot Summaries

32. Dominion BMDs use commercial off-the-shelf (COTS) printers to print a
    ballot on blank paper stock which contains a two-dimensional barcode
    ("QR code") and a summary of the voter's ballot choices ("ballot
    summary").

33. Dominion BMDs print ballot summaries with an abbreviated label for
    some contests. For example, I possess a sample ballot labeling a contest
    as "County Unified Gov Brd Mem". The contest labels appear to have a
    maximum length which requires truncation. Such abbreviations inhibit
    the ability of voters to verify that their selections are listed correctly.

34. Dominion BMDs do not print the full text of any ballot proposition or
    question and these types of contests are routinely assigned a cryptic
    contest label instead. In the 2017 general election in Denver, Colorado, a

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[7] https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3375755

9

Dominion BMD labeled eight long and complex ballot questions[8] in the ballot summary as "Referred Question 2A" through "Referred Question 2H," and "Initiated Ordinance 300."[9] (See Attachment B.) No voter can be expected to reliably remember what issues are being referenced by these labels. The voter selections listed are also difficult to decipher and are adverse to voter verification: "Vote for YES/FOR - SI/EN FAVOR DE."

35. Dominion BMDs print ballot summaries which indicate when a voter does not make a selection in a contest, however they do not indicate if *both* the contest and the selection has been omitted, due to malfunction or malfeasance. To detect this problem, each voter would have to remember all contests presented on the touchscreen and notice that a contest was not included in the printed list.

36. My experience with the Dominion BMD is that, when voters increase the size of the text on the screen to improve readability, the size of the text printed for the ballot summary, used for voter review, will not similarly increase. The text remains in the default font set for the election, which is typically a 10pt sans-serif font. Text which is small or whose size is not

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[8] The full text of the ballot questions can be reviewed at https://ballotpedia.org/
November_7,_2017_ballot_measures_in_Colorado

[9] See Attachment B,

under voter control inhibits the ability of voters to verify that their selections are listed correctly.

37. Even if voters are willing to take the time to attempt to verify the human-readable text in the ballot summary and make their best efforts to be accurate, there is no way to know whether their "verification" was accurate. Those administering the election cannot know if any voter, and therefore certainly not every voter, attempted to verify or did so successfully. As a result, ballots which use ballot summaries cannot be viewed as a reliable source record for auditing.

Problems with Barcodes

38. Barcodes increase the reliance on available, well-functioning BMDs in order to conduct an election. A BMD is a prerequisite for casting a ballot because a voter cannot create a barcode without its assistance.

39. Barcodes are machine-readable, but not human-readable. A device—such as a computer, barcode scanner, or smartphone application—is necessary to read the data stored in a barcode.

40. The Dominion BMD encodes vote selections inside one or more QR Codes as an alpha-numeric string of characters. This string of characters only has meaning to the voting system. It is proprietary. Any interpretation of the data stored in QR codes, even during post-election audits, is dependent on the voting system.

41. The QR codes may contain more than ballot selections. They could contain metadata associated with the ballot which can be used to determine the identity of the voter or the order in which votes were cast. Metadata which can be used to identify voters has been observed in the barcodes of other voting systems. The data stored in barcodes is unregulated and is not examined during federal certification.

42. The QR codes are not voter-verifiable. Even with a device to assist them, voters are unable to verify that the QR codes contain the correct information to ensure that their ballots are being cast-as-intended. A voter requires transparent information to make the choice to cast or to reject a machine-marked ballot. If a voter cannot read the data that will be cast and sent to the tabulator, then a voter cannot make an informed choice.

43. Barcodes are the only votes that are tabulated by the op-scan. The election results are the aggregate of the barcodes counted.

44. A voter can only verify the portion of the paper record which is human-readable text. The Dominion op-scan does not interpret or tabulate the contents of the human-readable text in the ballot summary. In contrast, another EAC-certified voting system, the Hart Verity Duo, does not use barcodes to store vote selections and uses optical character recognition ("OCR") to tabulate the human-readable text in the ballot summary.

45. The human-readable text in the ballot summary will only be inspected by officials if there is a manual recount or audit which includes such inspection and if the ballot is selected for review. The ballot summary serves as a voter-verifiable paper audit trail ("VVPAT").

46. Voting systems with barcodes and ballot summaries are vulnerable to Barcode/VVPAT Mismatch Attacks ("Mismatch Attack"), where a BMD outputs the correct selections in the ballot summary but encodes different selections in the barcode. The voter cannot notice the modified votes and will approve the ballot.

47. A barcode and ballot summary may not match for reasons unrelated to malicious attacks. As an example, in the 2016 Maryland General Election, a BMD printed barcodes for 18 contests but only printed the human-readable text for three. The voter still cast the ballot and the barcodes were counted, but the human-readable text is not auditable.[10]

48. Barcodes provide a path for hacking a voting system which does not exist with a ballot without barcodes. A barcode scanner can be thought of as a keyboard, which can submit any input when a barcode is read by the voting system. It may be possible to send commands which exit the running the voting system program. It may be possible to send commands

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[10] See Attachment A, from Maryland Board of Elections slideshow, slide 27, accessible at http://www.ncsl.org/Portals/1/Documents/Elections/Elections_June2017_Ballot_Image_Audits.pdf

which allow a code injection, which can cause arbitrary code to be executed.

Concerns about Electronic Pollbooks

49. As with the voting system, the primary security concern of electronic pollbooks is that a well-functioning computer becomes a prerequisite for determining a voter's eligibility and introduces a risk that it will be misconfigured, malfunction, or otherwise not be available.

50. There are real-world examples where electronic pollbooks have malfunctioned, resulting in confusion, long lines, or voters being turned away. Problems may have allowed voters to vote more than once.[11]

51. The best practice to ensure that voter check-in is resilient to problems is to have paper pollbooks as a back up in every polling place. The paper pollbooks must be up-to-date with the current voter registration database and must be reconciled or updated after the early voting period to ensure that early voters are ineligible to vote a second time.

52. Poll Pads include networking capabilities over WiFi, cellular modem, and Bluetooth. Poll Pads use WiFi or cellular modem to connect to a central server hosting the election registration management software. Poll

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[11] Johnson County, IN: https://www.in.gov/sos/elections/files/Report%20-%20Johnson%20County%20ePB%20Investigation%20Dec%2031%202018.pdf
Durham County, NC: https://www.charlotteobserver.com/news/local/article113248708.html
Lehigh County, PA: https://www.mcall.com/news/elections/mc-nws-lehigh-county-vote-twice-opportunity-20181109-story.html

Pads use Bluetooth to share voter check-in data with other Poll Pads in the same polling place to prevent double-voting. The Poll Pad can still function (with reduced features) if some or all of these network services are disabled.

53. Running any network services increases the risk of cyberattack, either through unauthorized connections to the system or using Machine-in-the-Middle Attacks where a malicious actor either intercepts, modifies, or eavesdrops on network communications. If network-based features are not essential, networking services should be disabled.

54. I am aware that in June 2019, the City of Philadelphia purchased 3,550 KNOWiNK Poll Pads for $2.7 million and planned to use them for the first time in November 2019. In August 2019, Stephanie Tipton, the city's acting chief administrative officer, notified the Board of Elections that they had encountered problems. She wrote: "The observed problems included failures to properly connect to voting machine printers and inadequate election night reporting." The project management team recommended against using the Poll Pads because "it does not have confidence that KNOWiNK's poll book system will be able to perform reliably for this November's election."[12]

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[12] https://www.inquirer.com/politics/philadelphia/philly-epollbook-electronic-systems-should-not-be-used-city-says-20190917.html

55. Unlike voting systems, the EAC does not certify electronic pollbooks, nor does it review their functionality or security. The responsibility falls to each state to independently review the functionality and security of electronic pollbooks.

56. A thorough cybersecurity review of the Poll Pad installation in the polling place should be conducted, primarily to ensure that unauthorized access to the Poll Pad and to the voter database is prevented.

This 22nd day of October, 2019.

Kevin K. Skoglund

16

Attachment A

BALTIMORE CITY/STATE OF MARYLAND
2016 PRESIDENTIAL GENERAL ELECTION
11/08/2016
011-003, BALLOT STYLE 4

PRESIDENT - VICE PRES——
                                                    TRUMP-PENCE

U.S. SENATOR——
                                                    KATHY SZELIGA

REP IN CONGRESS———
                                                    CORROGAN R. VAUGHN

MAYOR——

Not all information printed on the card. You can see the bottom of the card in the image so this not not a scanner issue, it is a ballot marking device issue.

Attachment B

Official Ballot
City and County of Denver
Coordinated Election
Tuesday, November 7, 2017

Boleta Oficial
Ciudad y Condado de Denver
Elección Coordinada
Martes 7 de noviembre de 2017

Ballot 5 - Type 5

1330816830

1489, 149:

Director at Large
  Vote for Robert Russell Speth

Director District 4
  BLANK CONTEST

Referred Question 2A
  Vote for YES/FOR - SI/EN FAVOR DE

Referred Question 2B
  Vote for YES/FOR - SI/EN FAVOR DE

Referred Question 2C
  Vote for YES/FOR - SI/EN FAVOR DE

Referred Question 2D
  Vote for YES/FOR - SI/EN FAVOR DE

Referred Question 2E
  Vote for YES/FOR - SI/EN FAVOR DE

Referred Question 2F
  Vote for YES/FOR - SI/EN FAVOR DE

Referred Question 2G
  Vote for YES/FOR - SI/EN FAVOR DE

Referred Question 2H
  Vote for YES/FOR - SI/EN FAVOR DE

Initiated Ordinance 300
  Vote for YES/FOR - SI/EN FAVOR DE

IMP4-004389

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**IN THE UNITED STATES DISTRICT COURT
FOR THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION**

<table>
<tr><td>

DONNA CURLING, ET AL.,
Plaintiffs,

v.

BRIAN KEMP, ET AL.,
Defendants.

</td><td>

Civil Action No. 1:17-CV-2989-AT

</td></tr>
</table>

**DECLARATION AND VERIFICATION BY MARILYN MARKS
OF CERTAIN ALLEGATIONS STATED IN THE FIRST
SUPPLEMENTAL COMPLAINT OF COALITION PLAINTIFFS**

1. My name is Marilyn R. Marks.

2. I offer this verification to substantiate Coalition for Good
   Governance's organizational and associational standing to bring the
   claims raised in the *First Supplemental Complaint of Plaintiffs
   Coalition For Good Governance, Laura Digges, William Digges III,
   Ricardo Davis, and Megan Missett* (the "FSC," Doc. 601).

3. The facts and allegations pertaining to Coalition for Good
   Governance's organizational and associational standing contained in
   Paragraphs 210-214, and 218-220 of the FSC are true.

4.   The attached Exhibit 1 "*State of Georgia Request for Information: New Voting System,*" Dominion Voting, dated Aug 24, 2018 was obtained by download from the Secretary of State's website at https://sos.ga.gov/securevoting/ .

5.   I downloaded a copy of the contract and purchase agreement dated July 29, 2019 between Dominion Voting Systems, Inc. and the Secretary of the State of Georgia from the Secretary of State's website at https://sos.ga.gov/securevoting/ and because of its length, I preserved a true and correct copy accessible at this link https://coaltionforgoodgovernance.sharefile.com/d-s8c1c6e4b1084097b

6.   If called to testify under oath at an evidentiary hearing on the pending motions for preliminary injunctive relief, I would affirm the foregoing facts and allegations to be true.

Pursuant to 28 U.S.C. § 1746, I declare and verify under penalty of perjury that the foregoing is true and correct.

Executed on this date, October 23, 2019.

_____

Marilyn R. Marks

EXHIBIT

1

DOMINION VOTING™

Our customers come first.

State of Georgia

Request for Information (RFI): New Voting System Event number: 47800-SOS0000035

ORIGINAL

Prepared for:	State of Georgia Secretary of State
Address:	237 Coliseum Drive Macon, GA 31217
Prepared by:	Waldeep Singh, Executive Vice President of Sales
Email:	Sales@DominionVoting.com
Phone:	(909) 362-1715
Due Date:	August 24, 2018 at 2:00 PM EST

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Table of Contents

Requested Information

3.1   Background

State law provides for a uniform voting system where every county uses the same type of voting system equipment. Georgia has 159 counties and 159 election superintendents who run elections for each respective county. The State Entity maintains the statewide voter registration system; builds the ballots for each federal, state, and county election; and creates the electronic pollbooks files. The State Entity expects at this time that it will retain these responsibilities while using the new voting system.

The State Entity is interested in replacing the following components of its current voting system:

- **Election Management System: Global Election Management System ("GEMS")**
- **In Person Voting Machines: AccuVote R6 and AccuVote TsX ("DREs")**
- **Precinct Scanners & Tabulators: AccuVote-OS**
- **Statewide Electronic Pollbook System: ExpressPoll 4000 and ExpressPoll 5000**

The State Entity is also interested in exploring options for native Election Night Reporting (public display of election night aggregated results) capabilities that are available with proposed voting system solutions.

The State Entity is not interested in replacing its voter registration system at this time.

Georgia has four methods of voting: absentee by mail voting using optical scan paper ballots, absentee in person voting (three weeks of early voting), provisional ballot voting, and election day voting. Currently, absentee in person and election day voting are conducted solely on DREs. The State Entity anticipates that these four methods of voting will continue while using the new voting system. During absentee in person voting, voters are able to vote in any early voting location in their county. Georgia would like to keep this option for early voting in any new system. On election day, voters must vote at their assigned precinct.

Dominion Voting Systems, Inc. (Dominion) has read and understands the background information as related to this Request For Information (RFI).

3.2   Statistics

Polling Places: Approximately 2,365

DREs: Approximately 27,000

Precinct Scanners & Tabulators: Approximately 800

Registered Voters: Approximately 6,700,000 (92% Active Status; 8% Inactive Status)

Ballots Cast in November 2016 General Election: 4,165,405

2018 Primary Election Turnout Breakdown:
- **70%-75% of Electors Vote on Election Day**
- **20%-25% of Electors Vote During Absentee in Person Voting (Early Voting)**
- **2%-5% of Electors Vote Absentee by Mail**
- **Less than 0.2% of Electors Vote Provisionally**

2016 General Election Turnout Breakdown:
- **40%-45% of Electors Vote on Election Day**
- **50%-55% of Electors Vote During Absentee in Person Voting (Early Voting)**
- **5%-10% of Electors Vote Absentee by Mail**
- **Less than 0.2% of Electors Vote Provisionally**

Dominion has read and understands the statistics as presented in Section 3.2.

State of Georgia
New Voting System
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3.3   Georgia's Election Calendar

Federal, state, and county office elections are held in even-numbered years. For partisan offices, there is a general primary and a general election. In order to win a primary, general, or special election in Georgia, a candidate must receive a majority of the votes cast for that office. If no candidate receives a majority of votes cast, a run-off election is held between the candidates with the two highest number of votes. Non-partisan and judicial elections occur simultaneously and on the same ballot as the primaries in even-numbered years. Municipal elections usually occur in November of odd-numbered years, but some are held in even-numbered years.

Dominion understands the State's Election Calendar guidelines as provided in Section 3.3 above.

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3.4 Future Methods of In-Person Voting

The State Entity anticipates that Georgia will move to a method of in-person voting utilizing optical scan paper ballots; digital scanners and tabulators; and ballot-marking devices for voters with disabilities. Provisional ballots will still be available as required by law. It is likely that one of the following methods of in-person voting will be utilized once the next voting system is deployed:

- **Method 1: In-person (early and election day) voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot-marking devices) are scanned by digital scanners and deposited into a secure ballot box.**

- **Method 2: In-person (early and election day) voting is conducted solely with ballot-marking devices. Ballots marked using ballot-marking devices are scanned by digital scanners and deposited into a secure ballot box.**

- **Method 3: Absentee in-person (early) voting is conducted solely with ballot-marking devices. Election day voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot marking devices) are scanned by digital scanners and deposited into a secure ballot box.**

Dominion has read and understands the Future Methods of Voting information as presented in Section 3.4. This information has been taken into consideration to develop responses to the Questionnaire section below.

3.5 Basic Requirements

An election management system, digital scanners and tabulators, and ballot-marking devices must be certified by the Election Assistance Commission to satisfy – at the minimum – the VVSG 1.0 standard.

- **Solution must have been deployed successfully in another state.**
- **Solution must have functionality to quickly and accurately audit voting records.**
- **Solution must support overlapping and concurrent elections.**
- **Solution must have write-in candidate capability.**
- **Solution must incorporate encryption and digital signatures as security measures.**

Dominion has read and understands the Basic Requirements as presented in Section 3.5. This information has been taken into consideration to develop responses to the Questionnaire section below.

3.6   Questions

1)   **Explain how your solution meets our needs for the following voting system components:**

- **Election Management System**

    At the heart of our complete voting system solution is Democracy Suite, a robust and tested Election Management System that drives all voting channels out of a single comprehensive database; mail-in ballots, in person voting, accessible voting, and Uniformed Overseas Citizens Absentee Voting Act (UOCAVA)/Remote Accessible Vote By Mail (RAVBM). All pre-election and post-election tasks utilize the same database. From ballot layout to results reporting on Election Night, Democracy Suite is a complete, end-to-end elections solution that provides a single, powerful and versatile platform for election management. The manner in which the application is being considered is consistent with Dominion's experience in managing statewide implementations where the core application is utilized centrally (e.g. by the State) and the local jurisdictions use only a subset of the core application, which is further explained below.

    Democracy Suite is comprised of two main modules: Election Event Designer and Results, Tally and Reporting.

    ### Election Event Designer
    The Election Event Designer (EED) has all the tools needed to build the election project. From importing of your election data, ballot layout, audio, languages, machine settings to creation of election files for each voting unit, Election Event Designer sets the stage.

    We understand that ballot programming is a complex task that requires a high degree of accuracy and control. Dominion has developed tools to make this process more efficient, ensuring accuracy and peace of mind for your election staff. For instance,

    - Election definition data may be entered manually or imported from voter registration systems using the Election Data Translator utility. The Election Data Translator utility allows the import of the election definition from State or County election files further simplifying the election definition process.
    - Templates used for creating custom ballot layouts and options can be reused from election to election and imported into newly created election databases. Election definition data as well as the templates used for creating elections allow jurisdictions to create uniform, easy-to-read, and space efficient paper ballots.
    - Election Event Designer uses the State or County geopolitical and election data to calculate the appropriate ballot styles and generate full-sized press-ready ballots in industry-standard PDF format. EMS lays out a variety of import ballot formats and can be used allow for the easy import of translated ballot content in jurisdictions using

multiple languages.

- In the case of Georgia specifically, these files would then be transferred to local jurisdictions if the ballot layout functionality remains with the State.

The Democracy Suite system supports ballot layouts consistent with Georgia guidelines and requirements. The ballot is 8.5" wide, and standard ballot lengths for the ImageCast Tabulators (ImageCast Central, ImageCast Precinct and ImageCast Evolution, which is an all-in-one ballot marking device, scanner and tabulator) are 11" to 22" ballots. The number of voting positions depends on the ballot style and the length of the ballot. The system can generate and process a 22" double-sided portrait ballot that can accommodate 500 voting positions.

Results Tally and Reporting

Results Tally and Reporting (RTR) module allows for upload of results files from in-person and central tabulation equipment. The consolidated results are verified, tabulated and published. RTR offers maximum flexibility to create predefined reports.in addition to a variety of standard election day reports including, election summary, Statement of Votes Cast, Cards Cast and RCV round by round reports.

An additional efficiency built into the Democracy Suite RTR module is that reports can be generated as ballot processing continues uninterrupted. Under the current system, pulling reports causes a disruption to ballot processing. This efficiency enables the City to better respond to the community requests for real time election data.

Additional features supported by Democracy Suite include our Audit Mark, Dual Threshold and Adjudication modules detailed below:

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Audit Mark

Every single ballot in the election is imaged and appended with Dominion's patented AuditMark, a record of how the system interpreted the voter's selections. This ballot-level audit trail allows election officials and other stakeholders to review not only the ballot images, but also the tabulator's interpretation of each ballot.

Each image is labeled with the tabulator, batch, and sequence number within the batch, which corresponds to the physical ballot in the stack. The AuditMark is appended directly to the image showing how the vote was interpreted at scan time. This AuditMark will also include any adjudications applied to the ballot for voter intent. Even if ballots for a given batch are mixed after scanning, these multiple records provide a way of correlating the digital Cast Vote Record data to the image scanned and finally to the physical paper ballot. While the AuditMark allows ballot-level auditing, it is never tied to the voter.

Dual Threshold

When a hand-marked ballot is scanned by an ImageCast tabulator – at the precinct level or centrally – a complete duplex image is created and then analyzed for tabulation by evaluating the pixel count of a voter mark. The pixel count of each mark is compared with two thresholds (which are customer configurable. to determine what constitutes a vote.

If a mark falls above the upper threshold, it is determined to be a valid vote. If a mark falls below the lower threshold, it will not be counted as a vote. However, if a mark falls between the two thresholds (known as the "ambiguous zone"), it will be deemed as a marginal mark and the ballot will be returned to the voter for corrective action.

With this feature, the voter is given the ability to determine their intent at the time they cast their ballot, not an inspection or recount board after the fact, when it is too late. The chart below

illustrates the Marginal Mark threshold interpretation. If a mail ballot is returned with a marginal mark, the ballot is outstacked to the Adjudication Module. Here a team will view a voter's intent and the outcome noted in the system.

ImageCast Adjudication

As ballots are being scanned on the ImageCast Central or through in-person voting locations, the Adjudication software electronically out-stacks ballots, in real time, that need to be reviewed for

conditions ranging from overvotes, undervotes, blank ballots, blank major contests and marginal marks to certified write-ins. The Adjudication module allows for the efficient processing of ballots that require resolution of voter intent on a ballot-by-ballot basis. Ballots with write-ins that are tabulated on the ImageCast Evolution, will also be sent through Adjudication for resolution. This system eliminates the need to purchase or print additional ballots, take days to manually adjudicate and re-scan days after the election is over. Simple scan ballots and adjudicate ballots the same day. Adjudication also offers a robust, ballot-level audit trail. Each ballot scanned by the system is appended with an AuditMark.

```
Scanned on ICC Tabulator 1
Ballot ID: 2
UNITED STATES SENTATOR
    Vote for CHARLES GUTHRIE
UNITED STATES REPRESENTATIVE
    Vote for ROBERT LA FOLLETTE
STATE SENATOR 37TH DISTRICT
    BLANK VOTE
BOARD OF EDUCATION
    BLANK VOTE
```
```
Adjudicated at 2:48 PM on 12/12/2016 by admin
Scanned on ICC Tabulator 1
Ballot ID: 2
UNITED STATES SENTATOR
    Vote for CHARLES GUTHRIE
UNITED STATES REPRESENTATIVE
    Vote for ROBERT LA FOLLETTE
STATE SENATOR 37TH DISTRICT
    "Adjudicated* Vote Accepted for ANDREW CARNEGIE
BOARD OF EDUCATION
"Adjudicated* Vote Accepted for BOOKER T. WASHINGTON
```

When a ballot is reviewed in the Adjudication module, and a user makes an adjudication decision, the ballot image is appended with a record of that decision: which user took what action at what time. This allows election officials to ensure that adjudication decisions made by authorized users can be further scrutinized and reviewed, and reversed if necessary, with a clear audit trail of which decisions were made concerning a particular ballot.

- **Ballot Marking Devices**

Dominion's primary offering for ballot marking devices is the ImageCast X, which can be configured as a ballot marking device or a direct recording electronic with a Voter Verifiable Paper Audit Trail printer. Below we provide additional details for each product:

ICX Ballot Marking Device

Today, voters and election officials are increasingly looking to leverage everyday technologies to improve the voting process and experience. Dominion is listening to our customers, and has a designed a touchscreen, in-person Ballot Marking Device that combines the flexibility, efficiency, and simplicity of modern technology, with an underlying platform of security and performance – Democracy Suite. The ImageCast X Ballot Marking Device can support different voting models, including early voting.

In addition to its touchscreen functionality, the ImageCast X Ballot Marking Device was designed as a voting solution for all. The fully ADA-compliant ImageCast X offers several options for voters with accessibility needs to vote in a private and independent manner. It presents the ballot in audio only, visual only, or both audio and visual modes, depending on personal preference.

The ImageCast X is compatible with a range of accessibility devices that voters can use to navigate through the ballot and make their selections. The system is compatible with a hand-held controller called the Audio Tactile Interface (ATI), sip and puff device, or paddle device.

Voters make their selections on the ImageCast X, which then prints a paper ballot. The printed choice summary ballot contains a written summary of the voter's choices, as well as a 2D barcode that is read by Dominion's ImageCast Central tabulator. No votes are stored on the ImageCast X touchscreen unit. The ImageCast Central tabulators store and tabulate all votes.

The ImageCast X is comprised entirely of COTS (commercial-off-the-shelf) hardware. The flexibility and ease of use of this device makes it the best option for the changing election landscape.

ImageCast X Direct Recording Electronic

The ImageCast X can also be configured as a DRE configuration when accompanied by the VVPAT (Voter Verified Paper Audit Trail) thermal printing unit. The VVPAT method provides feedback to voters using a ballot-free voting system. The VVPAT is an independent verification system for voting machines designed to allow voters to verify that their vote was cast correctly, to detect possible election fraud or malfunction, and provide a means to audit the stored electronic results.

- **Digital Scanners & Tabulators**

ImageCast Precinct

The ImageCast Precinct is one of the most widely used tabulators with over 100,000 units deployed worldwide. It is one of the most reliable optical scan tabulators, and safely stores and tabulates each vote from every ballot – including hand-marked ballots and choice summary ballots.

Used in large scale elections, the ImageCast Precinct is the industry's most reputable and reliable optical scan tabulator. Not only does the ImageCast Precinct tabulator consistently tabulate votes, it also has a strong track record on wireless results transmission in large, complex elections.

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ImageCast Evolution

The ImageCast Evolution unit (ICE) is a precinct-level, digital scan, ballot marking device and tabulator that is designed to perform three major functions:

- Ballot scanning and tabulation
- Ballot review and second chance voting
- Accessible voting and ballot marking

The ImageCast Evolution is Dominion's most advanced and **simple to use** tabulator. It features a full LCD interface that presents a unique, all-in-one digital ballot scanning and internal ballot marking solution. The ImageCast Evolution was designed to exceed the EAC VVSG 2005.

The ImageCast Evolution functionality includes scanning and ballot marking for all targets on ballots ranging from sizes of 8 ½inches by 11 to 22 inches in length. The ImageCast Evolution provides several different options for certain ballot parameters. For example, a jurisdiction can configure the ImageCast Evolution to automatically accept, reject or divert a ballot under certain conditions. Additionally, it can be configured to alert the voter or operator of any errors that require further action to be taken.

Voters make their selections by filling in the voting targets next to their choices on a paper ballot. The voter then inserts the ballot directly into the ImageCast Evolution, which performs the following functions:

- Scans the ballot.
- Alerts the voter of any errors on the ballot, with or without full ballot review on.
- Interprets the digital image of the ballot and appends to the bottom of the image a record of how that ballot was interpreted by the machine (AuditMark imaging technology, proprietary to Dominion Voting Systems).
- Redundantly stores and tallies the results.
- Prints cumulative totals of all votes cast after the polls have been closed.

The ImageCast Evolution is also equipped with an ultra-sonic multi-feed detector that prevents the device from accepting more than one ballot a time. Dominion has developed secure ballot paper that

if used, is detected by the unit. If the paper is a copy or not a valid ballot, the unit will reject the ballot.

- **High Speed Scanners and Tabulators**

ImageCast Central

Dominion's ImageCast Central, like all of our ImageCast products, stores the ballot image with the secure AuditMark. The system's flexibility allows the jurisdiction to customize out-stacking conditions, such as overvotes, undervotes, marginal marks, and certified write-in contests. The ImageCast Central has all the tools election officials are looking for to make their central count process easy and more efficient.

With the ImageCast Central count solution, Dominion focused its efforts on how to create efficiency using lower cost, off-the-shelf scanners which meet the VVSG 2005 standards, and software that streamlines the process.

Easy to Use

The ImageCast Central features a user friendly, intuitive touchscreen user interface to securely access the administrative functionality of the unit as required for the setup, operation and closing of the device. Non-technical personnel can easily learn to handle equipment, as the software is intuitive and requires minimal training for users. It is simple - the operator loads the batch into the scanner; presses scan. When complete, the operator presses the accept button and moves on to the next batch.

The operator does nothing but process the ballots. The system's intelligence does the rest.

Flexible and Scalable Solution

Along with the requisite COTS hardware, the ImageCast Central provides ample flexibility to meet the needs of small, medium and large jurisdictions. ImageCast Central allows jurisdictions to consolidate results in an efficient environment, in real time.

Better Central Scan Reliability

This use of less expensive and compact third-party devices enables the ImageCast Central count solution to offer higher sustained throughputs in the face of hardware failures, flexible site layouts when space is at a premium, and access to a vast pool of readily available replacement parts and certified technicians. Additionally, these units have minimal moving parts, which increases the reliability. A simple microfiber towel is all you need to clear the dust and particles left by paper ballots. The uptake rollers and be easily

removed for cleaning or replacement. All of these factors translate to improved maintainability, and lower cost of ownership.

The ImageCast Central has a proven track record of being able to scan ballots in real- life ballot scenarios, such as folded ballots, and ballots that have been crushed, stained or are dirty. Customers have noted that this has significantly reduced the number of ballots that need to be hand duplicated before being processed through the system. The Canon scanner features a simple paper path, limiting the number of paper jams. There is no pre-sorting of ballots or re-orientation of ballots needed before scanning.

Programming the ImageCast Central

Central scanning is typically used to process absentee or mail-in ballots. The election definition is taken from EMS, using the same database that is utilized to program any precinct scanners for a given election. Multiple ImageCast Central scanners can be programmed for use in an election. The ImageCast Central application is installed and later initialized on a computer attached to the central count scanner. Ballots are processed through the central scanner(s) in batches based on jurisdictional preferences and requirements.

Results from the ImageCast Central

The ImageCast Central stores ballot images by scanned batches. The scanned ballot images are migrated to the Election Management System through computer networking or removable media. As with results data from any precinct scanners in use for an election, Results Tally and Reporting is the portion of EMS that processes the images to provide tabulation and operational reports to the jurisdiction.

Batches can be appended, deleted, and processed in a number of ways to suit typical election workflows, intake of ballots before, during, and after Election Day, jurisdictional requirements surrounding absentee ballot tabulation, and canvassing needs. The ImageCast Central also features all of the technological advances present in the precinct-level tabulators – the AuditMark and the Dual Threshold technology.

The ImageCast Central is compatible with several scanner options to meet any demands, big or small. Our lineup includes the Canon Dr-M260 for small jobs, Canon DR-G1130 for medium to high volume, and the Interscan HiPro for high volume.

Configurations including the commercially available off the shelf products of the Canon Dr-M260 and Canon DR-G1130 are easily scalable by adding any number of additional units to handle expected volume. The Interscan HiPro (subject to certification) offers the highest scan capacity to meet the needs of the largest jurisdictions. Below we provide some detailed information regarding each scanner:

Cannon M260
- Low Cost and Highly Scalable
- Fully Integrated with ImageCast Central Software
- Scans single-sided and double-sided 11" to 22" ballots
- Up to 120 images per minute depending on settings

Canon G1130
- Mid-range Cost and Highly Scalable
- Fully Integrated with ImageCast Central Software
- Scans single-sided and double-sided 11" to 22" ballots
- Up to 200 images per minute depending on settings

Interscan HiPro (subject to certification)
- Single unit for high capacity needs
- Fully integrated with our ImageCast Central Software
- Small footprint of approximately 16 square feet
- Scans single-sided and double-sided 11" to 22" ballots
- Dual input trays for continuous scanning
- Up to 300 images per minute depending on settings

- **Statewide Electronic Pollbook System**

   For the purposes of this RFI response, Dominion is not proposing an electronic
   Pollbook System. As an elections provider for more than 1,200 entities throughout
   North America, our EMS is capable of working with many third party pollbook
   providers. We would be happy to explore compatibility with any pollbook provider
   selected by the state of Georgia or individual jurisdictions.

2) **Describe how your solution would accommodate each of the proposed
   methods of in-person voting described in Section 3.4. Discuss the pros and
   cons of each method as it relates to your solution.**

   Dominion believes in offering a variety of solutions to meet the needs of our customers,
   as opposed to adhering to a one size fits all mentality. Therefore, we have developed
   scalable products and solutions that can meet a variety of objectives to meet your needs.

   For example, the In-Person voting solution can be performed on the ImageCast X Ballot
   Marking Device or on the ImageCast Evolution. Scanning and tabulation can be
   performed at the local precinct level using the ImageCast Precinct or ImageCast
   Evolution, while central scanning is performed with the ImageCast Central.

   As detailed previously, the ImageCast X can be configured as a ballot marking device or
   a Direct Record Electronic. As a Ballot Marking Device the ImageCast X prints the
   completed ballot using the accompanying printer. The ballot can then be deposited into a
   ballot box for central tabulation or fed into the precinct based ImageCast Precinct or
   ImageCast Evolution.

   Simplicity and scalability are the main advantages of using the ImageCast X. To vote
   using the ImageCast X, a voter is provided with an activation card to activate the voting
   session and reveal the voter's specific ballot style. Once the voter has reviewed their
   ballot and has confirmed they are ready to print, the ImageCast X can print a reduced
   choice summary ballot on standard non-proprietary paper (8.5" x 11" or 8.5" x 14"),
   which contains a written summary of the voter's choices, as well as a 2D barcode which
   is read by any ImageCast tabulator.

   ImageCast X units can be scaled by adding or removing units from individual precincts to
   properly adjust for voter traffic. And given the compact size of the ImageCast X, efficient
   storage and transportation solutions are available.

   The ballot produced by the ImageCast X Ballot Marking Device is compatible with all
   ImageCast tabulation solutions including the ImageCast Precinct and ImageCast
   Evolution, which can be used as a precinct level scanner and tabulator where ballots are
   fed, scanned, and tabulated, pending any outstack conditions requiring adjudication.
   Alternatively, ballots can be inserted in to a general ballot box for central tabulation with
   the ImageCast Central.

The ImageCast X configured as a Ballot Marking Device, or a Direct Record Electronic, supports an efficient tabulation process, while preserving both a paper audit trail and digital ballot images to support an efficient audit process.

As Dominion works with approximately 1,300 jurisdictions across North America, we have the ability to provide numerous solutions to meet the needs of the State of Georgia.

Below we provide high level details on potential solutions for each of the voting scenarios. We would be happy to provide additional information in response to a Request For Proposal or upon request.

a) **Method 1: In-person (early and election day) voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot-marking devices) are scanned by digital scanners and deposited into a secure ballot box.**

Potential solutions for Method 1 include utilizing the ImageCast Evolution as an all-in-one ballot marking device and tabulator, or alternatively, utilizing the ImageCast X as the ballot marking device and paired with an ImageCast Precinct as the tabulator:

The ImageCast Evolution would be the only unit required to meet the needs set forth in Method 1, drastically reducing the number of units needed to be deployed in any given jurisdiction. At minimum 2-6 units per location would be sufficient to handle any Accessibility Voting requirements as well as Early Vote and in Precinct voting that would be done primarily on paper.

The **ImageCast X** paired with the **ImageCast Precinct** can be utilized to meet your needs under method 1. The ImageCast X can be configured as a Ballot Marking Device or as a Direct Recording Electronic with an associated Voter Verified Paper Audit Trail (VVPAT). In a VVPAT configuration, the voter prints the verifiable audit trail and casts the vote electronically. In the BMD configuration the voter prints the ballot which is then subsequently scanned in the ImageCast Precinct Tabulator. In either configuration, the jurisdictions would only need 1-2 ImageCast X units per polling location. The associated number of ImageCast Precinct Tabulators would remain 2-6 units depending on the factors highlighted above.

b) **Method 2: In-person (early and election day) voting is conducted solely with ballot-marking devices. Ballots marked using ballot-marking devices are scanned by digital scanners and deposited into a secure ballot box.**

If the jurisdiction were to select Method 2 as its primary method of voting than the number of ImageCast X units (either VVPAT or BMD) would increase relative to the decrease in the number of ImageCast Precinct Tabulators. In this scenario, the ImageCast X BMD/VVPAT configuration would be 2-6 units per location depending on the jurisdiction and 1-2 ImageCast Precinct Tabulators.

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c) **Method 3: Absentee in-person (early) voting is conducted solely with ballot-marking devices. Election day voting is primarily conducted with optical scan paper ballots marked by hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot marking devices) are scanned by digital scanners and deposited into a secure ballot box.**

Our proposed Method 3 solution is similar to Method 2 above with respect to product offering and quantities. The ImageCast X units (either VVPAT or BMD) can be utilized for both Early Voting and Election Day to reduce the overall number of units required for purchase.

3) **Describe the paper stocks associated with your proposed solution. What are its storage requirements in regards to climate and space?**

The approved paper for ImageCast ballots has been incorporated into a family of options known as VoteSecure (100# Text). Understanding that different printing technologies can impact the paper surface of a ballot in different ways, VoteSecur has been developed to allow printers to choose a VoteSecure option that will provide the best performance on a jurisdiction's voting equipment.

Manufacturer	Print Method	Weight	Color / Finish	Recommended Paper
Rolland Enterprises Inc	Toner Based Ballot Production	100# Text	Bright White, Smooth Finish	**VoteSecure SL**
Rolland Enterprises Inc	Inkjet Ballot Production	100# Text	Bright White, Smooth Finish	**VoteSecure IJ**
Rolland Enterprises Inc	Offset Ballot Production	100# Text	Bright White, Smooth Finish	**VoteSecure SD**

The paper does not require any special storage requirements and can be stored in the same conditions as the associated hardware as described later in this proposal.

4) **Please provide a number of scanners and ballot-marking devices that Georgia would need for each proposed method of in-person voting described in Section 3.4, keeping in mind that currently voters are allowed to vote at any early voting location in the county during absentee in-person voting.**

Method 1
Dominion Voting has a variety of options available to meet the requirements set forth in Method 1.

ImageCast Evolution (ICE). The ICE is the only "all-in-one" ballot marking device and precinct tabulator on the market today. If the jurisdiction were to select this product offering then it would be the only unit required to meet the needs set forth in Method 1, drastically reducing the number of units needed to be deployed in any given jurisdiction. Dominion anticipates that additional information would be provided as part of any Request for Proposal that would further delineate the requirements set forth in this method of voting. At minimum 2-6 units per location would be sufficient to handle any Accessibility Voting requirements as well as Early Vote and in Precinct voting that would be done primarily on paper. Further analysis would need to be conducted to ascertain the throughput per location, early voting sites based on this configuration, logistical information such as warehouse space and transportation to and from polling locations, ballot box design (e.g. hard case or collapsible) in order to provide a complete configuration.

ImageCast X BMD or VVPAT with ImageCast Precinct. In this configuration, the ImageCast X can be utilized in either a BMD configuration or in a similar DRE configuration with an associated Voter Verified Paper Audit Trail (VVPAT). In a VVPAT configuration, the voter prints the verifiable audit trail and cast the vote electronically. In the BMD configuration the voter prints the ballot which is then subsequently scanned in the ImageCast Precinct Tabulator. In either configuration, the jurisdictions would only need 1-2 ImageCast X units per polling location. The associated number of ImageCast Precinct Tabulators would remain 2-6 units depending on the factors highlighted above.

Method 2
In-person (early and election day) voting is conducted solely with ballot-marking devices. Ballots marked using ballot-marking devices are scanned by digital scanners and deposited into a secure ballot box.

If the jurisdiction were to select Method 2 as its primary method of voting than the number of ImageCast X units (either VVPAT or BMD) would increase relative to the decrease in the number of ImageCast Precinct Tabulators. In this scenario, the ImageCast X BMD/VVPAT configuration would be 2-6 units depending on the jurisdiction and 1-2 ImageCast Precinct Tabulators.

Method 3
Absentee in-person (early) voting is conducted solely with ballot-marking devices. Election day voting is primarily conducted with optical scan paper ballots marked by

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hand. Ballot-marking devices are available to be used as needed. Ballots (hand-marked and marked using ballot marking devices) are scanned by digital scanners and deposited into a secure ballot box.

If the jurisdiction were to select Method 3 as its primary voting method then it would be similar to Method 2 above with respect to product offering and quantities. Bearing in mind that the ImageCast X units (either VVPAT or BMD) can be utilized for both Early Voting and Election Day to reduce the overall number of units required for purchase.

5) **Depending on the method of in-person voting described in Section 3.4 that Georgia adopts, it may have a need for ballot-on-demand printing capability. Please describe your solution to our potential need for ballot-on-demand printing.**

Mobile Ballot Printing
Dominion offers a Mobile Ballot Printing solution to easily print ballots whenever and wherever needed. Fully integrated with Democracy Suite, the Mobile Ballot Printing module allows jurisdictions to provide "Vote Anywhere" locations in a cost-effective and flexible way. The system is hardware "agnostic," giving you the flexibility to use your existing print hardware or leverage other commercially available off-the-shelf (COTS) printers.

The Mobile Ballot Printing module has a user-friendly interface that presents clear information about ballots available to print, and features audit reports to track how many times each ballot style has been printed. Democracy Suite ballots have interfaced with a variety of on-demand ballot printing solutions, and Dominion is willing to work with the current vendor to provide this service to the jurisdictions. The vendors qualified to print Dominion ballots are subject to a printing qualification process conducted by Dominion for quality assurance.

6) **Explain how your solution meets each of the basic requirements in Section 3.5.**

Per the requirements set forth in Section 3.5, an election management system, digital scanners and tabulators, and ballot-marking devices must be certified by the Election Assistance Commission to satisfy – at the minimum – the VVSG 1.0 standard.

- **Solution must have been deployed successfully in another state.**

  Agreed. Democracy Suite and associated ImageCast product solutions have been successfully deployed throughout North America. Our response to Question 23 below provides a representative list of current and future customers utilizing our solutions. We would be happy to provide references upon request or in response to a Request For Proposal.

- **Solution must have functionality to quickly and accurately audit voting records.**

  Agreed. Dominion provides strong auditing capabilities at every phase of the election event. Below, we provide details regarding auditing of the system and components to support a secure election project, auditing of vote records to provide timely election night returns, and post-election audit services to ensure transparency and accuracy of the election.

  System Audit
  The tabulator Audit trail file is stored on the Compact Flash memory card, and contains a chronological list of all messages generated by tabulator software. All audit record entries include a date and a time stamp. This file is encrypted and digitally signed to protect its integrity.

  During the final results tally audit activity, the automated audit log of each optical scanner is input into the EMS Results Tally and Reporting system for a consolidated record.

  This tabulator Audit trail file will include:

  - System startup messages (recorded by Application Loader).

  - System self-diagnostic messages (module initializations, security verifications).

  - All administrator operations (messages include "security key" id names).

  - All ballots cast, rejected and diverted.

  - All voter notifications (undervotes, overvotes).

  - All system errors (paper jams, power failures, hardware failures, data errors, etc.).

  - Source and disposition of system interrupts resulting in entry into exception handling routines.

  - All messages generated by exception handlers.

  - Notification of system login or access errors, file access errors, and physical violations of security as they occur, and a summary record of these events after processing.

  - Non-critical status messages that are generated by the machine's data quality monitor or by software and hardware condition monitors.

  All audit logs are digitally signed. If there is tampering of the audit data or logs, this is detected by the operating unit. The unit reports "Election file mismatch' and will not operate since modifying the audit files can only indicate malicious usage.

Every action, event, and operation that occurs on ImageCast tabulators is permanently logged to an audit log file that exists on both memory cards. Every event and operation that occurs on the election management system is kept on the election project audit within the EMS Database. This file is signed and encrypted.

Audit logs are available to operators at all times. On the optical scanners, these can be accessed from the Administration menu, and printed. In EMS, a directory of audit files is accessed in the graphical user interface, and can be printed. Operators with Administration privileges can access these files at any time.

Audit log records cannot be deleted nor modified. Users with proper authorization levels can generate and view the audit report. Audit reports cannot be deleted.

Ballot Audit Review

Dominion has developed a Ballot Audit and Review system to assist election officials in performing election canvasses and risk-limiting audits. This tool will be capable of sorting and filtering images of ballots by ballot style, precinct, polling location, contest and candidate, for the purposes of a recount or post-election audit. Officials can review all the digital ballot images in an election, or a subset of ballots based on the chosen filtering conditions.

This tool will provide an efficient and user-friendly interface for reviewing ballot images and associated results, as well as providing a framework to support a variety of auditing methodologies.

This tool allows multiple officials to access digital ballot images with their Digital Ballot AuditMark marks, digital Cast Vote Records, and related review notes. Filtering options enables the creation of ballot review subsets for specific audit reviews. This tool resides in a secure post-election environment that is separate from EMS.

Officials can create ballot review sets by filtering for any given audit scenario including specific requests from Election Committees and other internal and external parties. Users may make notes to individual ballots and ballot review sets to aid in follow-on reviews and audit discussions. Administrators may create and assign a ballot review set to a specific official. Upon reviewing each ballot, officials may add a note, mark it for additional review, or mark it as complete. Ballots within a ballot review set may be sorted against these attributes as desired.

Efficiency is realized through filtering and sorting capabilities. Officials may select specific filter criteria including District, Precinct, Precinct Split, Contest, Candidate, Tabulator, Outstack Conditions, Mark Fill Percentage, Adjudicated, Ballot Type, and or Ballot ID.

Flexibility is realized through user-friendly screen designs to aid in the rapid selection of filters and their choices in both large and small data set scenarios.

Furthermore, the Administrator may choose to distribute a large ballot review set across multiple users to speed the process.

The Cast Vote Record, (CVR) export, in JSON format, includes the highest degree of granularity, detailing up to each mark read by the system.

The ImageCast Ballot Audit and Review module will allow election officials to perform very intricate filtering and searches on the universe of ballots. Including loading sets of ballots, precincts, ballot styles, districts to be retrieved. The system will allow the election officials to read the output of any system that generates random sampling of ballots.

This process will generate ballot sets that can be reviewed by multiple parties. The ballot set will contain the ballot images with all the auditmarks, and the cast vote record for each ballot.

Post-election Risk Limiting Audit Capabilities
Democracy Suite at its core produces all necessary data for the State to perform Risk Limiting Audits. A Risk Limiting Audit presumes that the voting system is incorrect and customizes an audit package based on the acceptable risk limits and determines the proper number of ballots for review as an acceptable audit sampling.

Dominion is very proud to have assisted 58 of 64 Colorado counties that utilize Democracy Suite in the **first ever statewide Risk Limiting Audit.** To fulfill each Colorado county's obligation to perform a Risk Limiting Audit, Dominion prepared an export of ballot images, cast vote records, and all data necessary for the ballot manifest, which were integrated with a third party open source module.

- **Solution must support overlapping and concurrent elections.**

  Agreed. The Democracy Suite EMS and supporting hardware can store more than 10,000 ballot styles for any given election. Upon checking in at the polling place or vote center, an activation card is issued to the voter to insert into the applicable voting machine. The activation card accesses and displays the proper ballot and contests specific to the voter. So overlapping and concurrent contests are properly displayed based on the voter registration information.

- **Solution must have write-in candidate capability.**

  Agreed. Whether voting on an ImageCast X, ImageCast Evolution, or using a paper ballot, the Democracy Suite EMS allows for defining the number of allowable choices for each office, contest, measure, and for special voting options such as write-in candidates. write-in contests are available.

  Write in candidates processed on an ImageCast X or ImageCast Evolution prompts a touchscreen keyboard to appear, allowing the voter to type in the name of their preferred write in candidate. Paper ballots also support write-in candidate capability for any contest deemed appropriate during the election definition phase. Additionally,

ballots with write-in candidates can be set as an outstack condition during scanning to require additional scrutiny prior to tabulation.

- **Solution must incorporate encryption and digital signatures as security measures.**

  Agreed. The proposed solution provides a layered and comprehensive set of security controls for the end-to-end online voting process, including pre-voting (election definition), voting (online voting/ballot marking), and post-voting (results processing, reporting and publishing). Security controls include physical security mechanisms (secure data centers), access control (role-based access control and user authentication with real-time audit records), data confidentiality (encryption using NIST verified algorithms such as AES256) as well as data integrity (digital signatures and certificates using NIST verified algorithms such as RSA and SHA256).

  Data Protection: Data files (XML and log files) are digitally signed and encrypted when stored. Any data files (XML and log files or other data) utilize SSL or SFTP secure channels for data communication.

  Dominion has vendor-managed backup procedures and processes in place to protect against data loss. The system is supported by a fully- redundant network and application architecture with no single point of failure. The system was specifically designed to span multiple data centers, on multiple servers with proactive network security devices powered by industry leaders. These separate data centers employ multiple redundant power supplies including backup generators.

  Multiple redundancies ensure our clients the confidence that their voting solution will be available throughout the voting period, regardless of load, heavy usage, or potential power outages. For any network type failures Dominion incorporates multiple static IP addresses, load balancers, etc.

  Audit Log: The application contains an Audit Log section, where all administrative access, and what actions were taken by individual administrative users, are recorded. Each audit entry is date and time stamped, and displays the ID of the administrative user, the action taken, as well as a description of the individual action. Clicking the Date Time label or the User label will change the sort order of the audit log display. The audit log is a permanent record of all system actions and cannot be deleted or reset by the election officials.

7) **Describe how your proposed solution provides unofficial results on Election Night at the polling place.**

   In Democracy Suite RTR (Results, Tally, and Reporting) we offer multiple ways of exporting data.

The Results Tally and Reporting module of the Democracy Suite EMS produces fast, versatile and easy customizable reports from data available in the election project. The Results Tally and Reporting module of the Democracy Suite EMS uses SQL Server Reporting Services to produce the following standard reports:

- Election Summary Report
- Statement of Votes Cast (precinct-level results)
- Cards Cast Report

All these reports can be exported to PDF, Microsoft Word, Microsoft Excel, and Microsoft PowerPoint.

These three reports allow filtering by Polling Location, Tabulator and Counting Group. Election Summary and SOVC reports can be customized to include a number of statistics including: Times Cast, Undervotes, Overvotes, Total Votes, Counting Group breakdown, Write-ins, Percentage by ballots cast or by votes cast, sorting of candidates by global order or by votes received. Filters by contest, precincts or districts can be applied. Report titles can be modified to indicate unofficial or canvass results. Report profiles can be saved, loaded and exported between election projects.

Additional reports include:

- Results per precinct (simplified precinct-level report)
- Contest overview data (simplified summary report)
- Located Scanned Ballots
- Results per Tabulator
- Canvass
- Write-ins per Tabulator
- Registration and Turnout
- Contests on Margin
- Tabulator Status
- Ballots Cast Per ballot Style
- Ballots Cast Per Tabulator

All these reports can be generated at the same time that scanning and adjudication is happening, without affecting performance or accuracy. Additionally, reports can be customized. Headers can be customized to include "official" or "non-official" wording, or other desired wording.

8) Describe how your proposed solution transfers data collected from Ballot Marking Devices, Digital Scanners, High Speed Scanners, and Tabulators to the Election Management System and vice versa.

a) Include a description of the essential peripherals that are used in the data transfer process (i.e. flash drives, memory cards, and other items that will have to be replaced periodically). Are these items proprietary

and are replacements purchased directly from the vendor or are they commercially available?

Dominion offers several solutions for transferring results files from the ballot marking devices and in-precinct scanners/tabulators. Below we describe transfer methods including a wireless modem transfer (on a closed network), wired modem transfer (on a closed network), and physical transfer. Ultimately, the method of transmission will be determined by the State based on local, regional, and state requirements and limitations.

Wireless Modem Transfers

Transmission of results via modem is a very intuitive process, involving minimal input from a poll worker. The ImageCast Precinct can be configured to automatically transmit results after the polls have been closed.

If the system recognizes the transmitted files as valid, they are automatically made available for tally in the Results Tally & Reporting module in the EMS. The ImageCast tabulators at the voting location will receive confirmation from the server that the results transmission was successful, or in rare cases, prompt the poll worker to retry the transmission. At the Elections office, election officials can view the upload status of all ImageCast tabulators deployed in the field from a single intuitive dashboard.

The modem must be plugged into the unit in order to begin results transmission. The intuitive user interface on the tabulator informs the poll worker of the status of the transmission and when it is completed.

Wire-based transmission

The second option available is similar to the receiving stations where removable media is transported to regional centers for remote tally. Memory cards, with encrypted vote totals, are taken from the ImageCast tabulators to regional tally locations.

At the hub, the memory cards are inserted into a card reader connected to a Results Transfer Manager client laptop with a secure Internet connection. The Results Transfer Manager will automatically upload the encrypted results files, and transmit them to the ImageCast Listener server, in a manner similar to results sent via modem. Once the files are received, they are available for loading into the Results Tally & Reporting module of the EMS system. The following diagram depicts the flow of data utilizing the Results Transfer Manager.

Physical Transfer

The ImageCast Evolution and ImageCast Precinct use two Compact Flash (CF) memory cards as their removable storage media. During ballot tabulation, ImageCast tabulators save the election files, ballot images and log simultaneously to both CF memory cards. The Primary CF card contains set of data files that defines the election, the tabulated results file, the ballot images, and the log file. The Administrative CF card holds a copy of the election results, images, and audit log. The files stored on these cards allow for recovery from any conditions that might cause the equipment to become inoperable. On the ImageCast tabulators, when an estimated 512 MB is used for the election database, audio files, etc. (typical), the remaining space is allocated for storing ballot images. An

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8GB memory card can hold approximately 13,500 8.5" x 20" double-sided ballots, and approximately 22,400 8.5" x 20" single-sided ballots. If required, a CF card with a lager capacity can be used.

The ballot images are given a random ID number as their file name, and when the images are extracted by the Results Tally & Reporting client application, they are randomized, thus ensuring the ballot images are de-coupled from voter order. All results files can be encrypted and are digitally signed.

The paper ballot acts as the final CVR. In case of system failure, the ballots in each ballot box can be rescanned on a different tabulator, on either an ImageCast Evolution, ImageCast Precinct or ImageCast Central.

The process for reading and tabulating votes from the ImageCast Evolution and ImageCast Precinct is simple. It requires uploading the content from the encrypted compact flash memory cards into the Results Tally & Reporting application, from where the results can be validated and published, ready for reporting. The flash memory cards are not proprietary and can be purchased from Dominion or a third-party vendor.

9) **Does your solution include Election Night Reporting capabilities? If so, please describe your Election Night Reporting solution, including security features.**

Yes. The Democracy Suite EMS uploads the result files into the results tally module, and consolidated results are verified, tabulated, and published. Once the vote data is uploaded into the result tally module, the flow of results to the public and media can be controlled. RTR allows election officials to review the results before releasing them, and the system provides a number of reporting methods, including but not limited to Summary and Precinct-level (Statement of Votes Cast) result reports. In addition to the static, pre-defined reports found in most reporting systems, RTR's Summary and Precinct-level reports use the Microsoft SQL Server Reporting Services engine to offer maximum flexibility to user. These reports feature a variety of configurable options and filters, including detailed breakdowns of provisional ballots cast, ballots cast during early voting, on Election Day, and by mail. Election administrators may use the default settings, or configure the data fields included in the reports depending on the target audience. Reports may be filtered by precinct, district, contest, tabulator, or voting location, to narrow in on specific results data of interest contained within the election database.

The RTR module features numerous export types for compatibility with third-party web-based Election Night Reporting software including our own.

10) **Georgia plans to begin using the new voting system by the 2020 Presidential Preference Primary, which was last held in March. Please provide an approximate timeline to implement your proposed solution.**

In an effort to ensure all customer needs are being fully considered and addressed, Dominion customizes implementation schedules and timelines for each client. Below we

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provide a general narrative describing the major milestones of implementation, followed
by a sample timeline:

Project Initiation & Kick-Off Meeting

The designated Dominion Project Manager and the Dominion Technical Lead will meet
with the State of Georgia to discuss and finalize the following activities:

1. Review project governance structure, project roles and responsibilities
2. Project Management Artifacts Review
    a. Review and adjust the following with a view to finalize immediately
        following contract signing:
        i.   Project plan activities, schedule and milestones
        ii.   Issue tracking & escalation plan
        iii. Risk mitigation plan
        iv.   Communication plan
        v.   Conflict resolution plan
3. Training Plan finalization
    a. Review and adjust training sessions and schedule
4. Review Architectural & Technical Specifications deliverables

Requirements Gathering, Gap Analysis & Application Configuration

A key phase in the initial stages of the project implementation will be a gap analysis
performed by the Dominion team, and subsequent configuration will be developed and
implemented.

Through this thorough analysis, Dominion will identify if there are aspects of system
functionality which need to be customized in order to meet the State's statutory
requirements. Dominion technology is used in dozens of states across the United States,
each with its own set of particular and unique requirements. Below we describe the steps
involved in customizing the system to the State's environment.

The Dominion Voting Democracy Suite Election Management System (EMS) is a highly
configurable election system that can be adapted to meet the needs of any jurisdiction.
Dominion will work closely with the State of Georgia to ensure that the system is
deployed in a manner that meets all jurisdiction requirements. The following steps are
typically required:

Create Election Data Import Bridge
In this series of steps, Dominion works with the IT professional responsible for the
creation and maintenance of the EIMS database to create a bridge that allows the direct
import of geopolitical data into the Democracy Suite EMS. This step dramatically
increases the speed and accuracy of the creation of the election database within the
Democracy Suite EMS. In this way, election divisions, contests, candidate names,
propositions and other essential data need not be input twice, reducing the likelihood of
user error.

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Customization of Configurable Options

During this stage, the State will provide final input and approval on ballot layouts, reports content, and the configuration of the options of the ImageCast voting terminals. This step takes place at the same time as the data import bridge is created and results data export file is created and provided to the IT system managers.

End-to-End Test

All Dominion systems are certified and tested to the highest standards. As a part of our internal quality assurance process, all systems undergo a rigorous operational test prior to release to the customer. This end-to-end test simulates real-election conditions and utilizes Election Day configurations. An election database is created, ballots are produced and cast on the appropriate voting systems, polls are closed, results are transmitted to the Results Tally & Reporting application of the Election Management System, and the State of Georgia reports are generated. Dominion understands that all systems must undergo a rigorous operational test prior to production release.

Procurement and Delivery

Procurement will be conducted in a manner that allows the coordination of supplies and consumables to be shipped directly to the State. During the procurement phase of the project, all of the commercial off the shelf components used in our election system are purchased. Dominion will deliver all required equipment to the State based on the timeline outlined in the project plan.

While it would be preferable for all parties to identify final quantities of all supplies and consumables required for Election Day on the initial contract, provision in the project plan has been made to allow incremental orders to be placed following change management processes. The State of Georgia always has the opportunity to work with the Dominion Project Manager to place additional orders at any time.

Installation & Acceptance Testing

The State of Georgia is responsible for User Acceptance Testing, and Dominion will provide an onsite presence to support acceptance testing performed by the State. Acceptance testing involves a visual inspection of the voting platforms, successfully completing a series of internal diagnostics, and successfully tabulating ballots from a sample test election. Dominion provides documentation and training for client technicians, as well as warehouse set-up guidelines for inbound acceptance testing.

Preparation for Acceptance Testing

Dominion will provide guidelines and checklists to the State of Georgia for acceptance testing and coordinate dates with the staff for software installation. This includes assessing suitability and identifying any modifications required, identifying areas for each process including a secure area for inventory control, preparing necessary acceptance documentation, and ensuring all necessary supplies are available.

Installation

Dominion will configure and install all software including the operating system and application software and set up the solution including all hardware and connections provided as part of the system.

Acceptance Testing

The State's Acceptance Team, with support from Dominion staff, will conduct detailed acceptance testing of the voting equipment. This acceptance testing provides assurance of full product functionality and accuracy. Acceptance testing is an essential part of the Dominion quality assurance process and takes place on-site at the customer location.

ImageCast X Voting Terminals - System Acceptance Testing:
1. Physical inspection of equipment
2. Functional testing using provided test materials

ImageCast Central – System Acceptance Testing:
1. Physical inspection of equipment
2. Functional testing using provided test materials

EMS Acceptance Testing:
1. Utilization of the EMS system to restore or create a simple election project
2. Creation of sample election files and ballots for in-person and ImageCast Central voting system
3. Directly load sample results from voting terminals
4. Create Election Results Reports

Training

Dominion will work closely with the State of Georgia to ensure that the training program is customized to meet your specific needs. Dominion will prepare and provide all needed training material, which includes training manuals, quick reference guides, website instructional courses, and technical reference manuals when necessary. Training and curriculum particular to the resources, staff, and needs of the State will be developed as part of the implementation meetings and materials will be provided before implementation for both hardware and software functions. In addition to formal training, our specialists will work to transfer the required knowledge and skills to relevant State staff, with the objective of ensuring that your staff is empowered to manage all aspects of the system's availability and functionality. Dominion takes pride in our ability to transfer to local officials the skills necessary to conduct even complex elections with autonomy.

Election Programming

The creation of the election database is a critical step in the election implementation. Given the very limited time available between the certification of the final ballot and the distribution of UOCAVA / Mail ballots, it is very important that timelines are appropriately managed. Dominion employs an iterative approach to ballot and report creation, where successive rounds of proofs are provided to election officials as more information becomes available. Using this approach, in many cases ballots have already been approved by the time they are certified, maximizing the time available for pre-election testing and logistics.

The following are the basic steps involved in election programming:

Final election data provided to programming team – Final election data is provided to the programming team. This should be provided at the earliest possible date.

Election Programming Quality Assurance – On completion of election programming, a back-up of the final data structure is transferred to the Dominion Team for verification and testing. The purpose of this test is to ensure that no unintended errors have impacted the data structure.

Test decks generated – On completion of programming quality assurance, the test decks are created for use in Logic and Accuracy testing.

Ballots and ballot audio generated and approved - On completion of programming quality assurance, ballots (including audio and paper ballots) are generated. Ballot proofs and electronic ballot image files are generated and provided to State Officials. State Officials carefully review each ballot. When State officials are satisfied that the ballots are correct, they initial each ballot, and when they are satisfied that all ballots are correct, they sign-off on their accuracy, and the image files are provided to the printer.

Ballot printing and distribution – Ballot printing and distribution are the responsibility of the printer and the State of Georgia Officials. Dominion will provide a recommended ballot inspection process that should be followed to ensure that all ballots produced are of sufficient quality.

Memory Media Programming – Memory media for the ImageCast X and ImageCast Central devices is programmed.

Receive test ballots from printer – The receipt of test ballots is the milestone that triggers the beginning of L&A testing.

Logic and Accuracy Testing

State officials and their staff will conduct logic and accuracy testing of voting equipment, using processes, procedures, and support provided by Dominion. The Dominion project team will be available throughout the L&A process available to assist on an as required basis. Training for State officials on the L&A process will take place prior to Logic and Accuracy testing.

Election Support

The Dominion project team will reach an agreement with the State of Georgia on their specific roles during ballot scanning and Election Night. Dominion's on-site support resource will have the necessary skills to assist the State to ensure the polling location opens in a timely fashion and that the equipment functions properly. In addition, a key role for the on-site support resource is to assist the State with tabulation and results reporting. Dominion's active voting support strategy can be customized to meet your specific needs.

Post-Election Debrief Meeting

Within 30 days following election event, Dominion will coordinate a post-election debrief meeting to discuss post-election events and activities with the State of Georgia. The debrief meeting is an opportunity to review lessons learned from both Dominion and the State, evaluate success factors and areas for improvement for process enhancement in

future election cycles. On completion of these reviews, project documentation and the project plan will be revised to reflect learning from the first election.

Below we provide a sample Project Timeline for your review:

ID		Task Name	Duration	Work	Jul 29, '18	Aug 5, '18
	🛈				S M T W T F S	S M T
1		Contract Process	8 days	0 hrs		
2	🖼	RFP Opening	6 days	0 hrs		
3	🖼	Contract Awarded	1 day	0 hrs		
4		Contract Executed	1 day	0 hrs		
5		Joint Project Team Communications	4 days	0 hrs		
6		Joint Project Team Meeting	4 days	0 hrs		
7		Introduction of Teams - Introduction of Team Members - Team	1 day	0 hrs		
8		Set up Recurring Meeting/Conference Call Schedule	1 day	0 hrs		
9		Define Project Phases and key deadlines & milestones	1 day	0 hrs		
10		Define customer Computer Infrastructure needs and requirem	1 day	0 hrs		
11		Define customer ImageCast Hardware Tabulator needs and req	1 day	0 hrs		
12		Order System Components	1 day	0 hrs		
13		Fine Tune and Modify Project Outline	1 day	0 hrs		
14		Democracy Suite System Implementation - Customer	18 days	0 hrs		
15		Verify Election Profile Information for Customer to be implement	1 day	0 hrs		
16		Deliver Customer Computer Infrastructure	1 day	0 hrs		
17		Install Customer Computer Infrastructure	1 day	0 hrs		
18		Conduct Acceptance Testing of Customer Computer Infrastructur	1 day	0 hrs		
19		Train Customer Staff - Democracy Suite EMS	1 day	0 hrs		
20		Deliver Customer ImageCast Precinct and Central Count hardware	3 days	0 hrs		
21		Conduct Acceptance Testing Training for Customer Staff	1 day	0 hrs		
22		Conduct Acceptance Testing of ImageCast Precinct and Central Co	10 days	0 hrs		
23		Train Customer Staff - ImageCast hardware components	2 days	0 hrs		

	Task	▬▬▬	Inactive Summary		External Tasks	▬▬▬
	Split	··············	Manual Task	▬▬▬	External Milestone	◆
Project: Project1 - Draft1	Milestone	◆	Duration-only	▬▬▬	Deadline	◆
Date: Mon 6/18/18	Summary	▬▬▬	Manual Summary Rollup	▬▬▬	Progress	▬▬▬
	Project Summary	▬▬▬	Manual Summary	▬▬▬	Manual Progress	▬▬▬
	Inactive Task		Start-only	⌐		
	Inactive Milestone		Finish-only	⌐		

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ID		Task Name	Duration	Work	Jul 29, '18 S M T W T F S	Aug 5, '18 S M T
24		Legacy System Removal	5 days	0 hrs		
25		Poll Worker Training & Documentation	40 days	0 hrs		
26		Meet with Joint Project Team & gather existing training materials	2 days	0 hrs		
27		Conduct Poll Worker Documentation Workshop/T3 Training	5 days	0 hrs		
28		Finalize Poll Worker Training Documents/Make final edits & Print	3 days	0 hrs		
29		Schedule & Conduct Poll Worker Training	30 days	0 hrs		
30		Election Events	43 days	0 hrs		
31		Mock Election (If included in contract)	13 days	0 hrs		
32		Determine complexity of mock election (how many pcts, locati	1 day	0 hrs		
33		Election Programming	2 days	0 hrs		
34		Print Ballots (If applicable to purchased system)	5 days	0 hrs		
35		Create Election Media	1 day	0 hrs		
36		Conduct Logic & Accuracy Testing	2 days	0 hrs		
37		Deploy Equipment	1 day	0 hrs		
38		Conduct Mock Election	1 day	0 hrs		
39		Meet with Joint Project Team to discuss election event	1 day	0 hrs		
40		Official Election Event - Jurisdiction-wide	20 days	0 hrs		
41		Determine complexity of election (how many pcts, location, ele	1 day	0 hrs		
42		Election Programming	3 days	0 hrs		
43		Print Ballots (If applicable to purchased system)	7 days	0 hrs		
44		Create Election Media	1 day	0 hrs		
45		Conduct Logic & Accuracy Testing	2 days	0 hrs		
46		Deploy Equipment	5 days	0 hrs		

Project: Project1 - Draft1 Date: Mon 6/18/18	Task		Inactive Summary		External Tasks			
	Split	....	Manual Task		External Milestone			
	Milestone	◆	Duration-only		Deadline			
	Summary		Manual Summary Rollup		Progress			
	Project Summary		Manual Summary		Manual Progress			
	Inactive Task		Start-only	⌐				
	Inactive Milestone		Finish-only	⌐				

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ID		Task Name	Duration	Work	Jul 29, '18							Aug 5, '18			
	❶				S	M	T	W	T	F	S	S	M	T	W
47		Conduct Election Event	1 day	0 hrs											
48		Meet with Joint Project Team to discuss election event	1 day	0 hrs											

	Task	▬▬▬	Inactive Summary	⌐─────⌐	External Tasks	▬▬▬
	Split	··············	Manual Task	▭▭▭	External Milestone	◆
	Milestone	◆	Duration-only	▭▭▭	Deadline	◆
Project: Project1 – Draft1	Summary	▬▬▬	Manual Summary Rollup	▬▬▬	Progress	▬▬▬
Date: Mon 6/18/18	Project Summary	▭▭▭	Manual Summary	⌐────⌐	Manual Progress	▬▬▬
	Inactive Task		Start-only	⌐		
	Inactive Milestone		Finish-only	⌐		

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11) **Georgia has a fairly centralized election creation process where the state builds the ballots for the counties. How does your election management system work efficiently in this state-centered model? Describe how your proposed solution transfers election data and ballot information created at a state level to local jurisdictions for execution, including security features.**

Dominion is vastly familiar with the centralized election process through our work with entities such as the State of Louisiana, who has been a longstanding customer. Our experience with Louisiana's centralized process uniquely positions Dominion to implement and administer a new voting system for the State of Georgia as we have proven systems and experienced personnel able to support a centralized election process. Below we provide a high-level overview of the methods used to support a centralized system.

The ImageCast voting devices are defined and configured in the Election Project and these parameters are passed to the voting devices via the election files on the removable memory media. Voting devices are automatically configured to know which ballot styles to accept or display to the voter, how the unit should interact with voters and where results files are uploaded. The poll worker only needs to follow the Election Day procedures established by the State, and never needs to make a decision regarding the voting device's settings at the voting location.

For the ImageCast scanners and tabulators, the election definition is taken from Democracy Suite EMS, using the same database that is utilized to program any in-person voting devices for a given election. Multiple ImageCast scanners can be programmed for use in an election. The ImageCast tabulator application is installed and later initialized on a computer attached to the central count scanner. Ballots are processed through the central scanner(s) in batches based on jurisdictional preferences and requirements.

12) **Describe the security features of your proposed solution including, but not limited to, cyber security; physical security; and data integrity verification and validation.**

Dominion implements security protocols that meet or exceed EAC VVSG 2005 requirements. All of Dominion's security protocols are designed and implemented to stay current with the rapidly evolving EAC security requirements set forth by various iterations of the VVSG.

Dominion's security technology is unprecedented insofar as it takes into account every aspect and every component of the Democracy Suite platform. This includes – but is not limited to – the full encryption of election projects, iButton security keys, Compact flash cards, election data, software applications, elections results files, and data transmission. In addition, Dominion developed a custom ballot authentication system built around an (optional) secure ballot paper stock and in-tabulator authenticators.

Maintaining Data Integrity
Data generated by the Democracy Suite platform is protected by the deployment of FIPS-approved symmetric AES and asymmetric RSA encryption. The Democracy Suite

Election Management System uses these techniques to encrypt election files prior to their use on ImageCast tabulators. Once the polls have been closed, the ImageCast tabulators encrypt all of the results files prior to transmitting them back to EMS.

SHA-256 hashes are used for all data integrity and verification. Should an intrusive process or altering of any file occur, hash values will be, in turn, altered as well. With that said, any presence of an intrusive process will be detected, as the hashes of any altered data will not match the value initially determined.

EMS Security
To protect any modification of software by malicious users, the Democracy Suite Election Management System integrates the Microsoft .NET Framework code signing process, within which, Dominion Voting digitally signs every executable and library (DLL) during the software build procedure. After the installation of Election Management software, only successfully verified EMS software components will be available for use. Digital signature verification is performed by the .NET Framework runtime binaries. If a malicious user tries to replace or modify any EMS executables or library files, the digital signature verification will fail, and the user will not be able to start the EMS application.

Role-based Access Controls
Democracy Suite integrates a role-based access control system for all software and hardware components. Each user accessing the system is the member of one of the predefined or custom-made roles. Each role has its own set of permissions, or actions that users of that role are allowed to perform. This access control approach provides authentication and authorization services and can be granular according to the jurisdiction's needs and organization. Complete user and role membership management is integrated within the Democracy Suite EMS Election Event Designer client module.

The Democracy Suite EMS platform implements role-based user management for provisioning access control mechanisms on each election project. Managing access control policies is integrated within the User Management activity of the EMS EED module. This activity is permitted only for users with administrative privileges.

For communication channels (as well as data storage) a combination of security techniques for data integrity, authenticity and confidentiality is implemented. Democracy Suite integrates AES or RSA encryption algorithms for data confidentiality, along with SHA-256 and HMAC digital signatures for data signing (data authenticity and integrity). The system does not require external Internet connections.

Communications
For communication channels (as well as data storage) a combination of security techniques for data integrity, authenticity and confidentiality is implemented. Democracy Suite integrates AES or RSA encryption algorithms for data confidentiality, along with SHA-256 and HMAC digital signatures for data signing (data authenticity and integrity). The system does not require external Internet connections.

Effective Password Management

Proper password management requires multiple activities and controls, namely:

- Input data validation
- Data quality
- Utilization of one-way (hash) cryptography
- Computer generated passwords for greater entropy and protection from dictionary attacks
- Different password strength profiles for different user levels
- Utilization of hardware tokens for storing user credentials (two-level authentication security: something you know and something you have)
- User state machine (initial, active, inactive)
- All of these activities and controls are integrated within the Democracy Suite platform.

Dominion utilizes authentication and authorization protocols that meet EAC VVSG 2005 standards. In addition, Dominion's solution relies on industry-standard security features to ensure that the correct users based on a user role or group are granted the correct privileges. Finally, each jurisdiction is responsible for ensuring that only authorized personnel have access to both the system and tools used for installation and configuration purposes. All back-end system, and tabulator operations are continuously and completely logged at all times to maintain a complete record of all election-related processes.

		Mode 1- Symmetric Crypto	
File Type	Storage Place	Confidentiality	Integrity
Election files (ICP) and election database (ICE), DCF (ICP) and MBS (ICE), result files (ICP/ICE)	NAS and Compact Flash	AES-128/256	HMAC (SHA-256)
Reports and Logs	NAS and Compact Flash	AES-128/256	HMAC (SHA-256)
Ballot Images	NAS and Compact Flash	-	HMAC (SHA-256)
Ballot Layout Definition (XML)	NAS and Compact Flash	-	HMAC (SHA-256)
Official Ballots	NAS	X.509 Digital Certificate	
User Credentials	iButton	HMAC (SHA-256)	HMAC (SHA-256)

File Type to Security Algorithmic Mappings

EMS Audit Log
From the initial state of the election project, until the deactivation state, the EMS system maintains an activity log within the EMS Database. This activity log contains every action that any of the users have performed within the system and represents a detailed

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audit log that can be analyzed and printed in the form of an audit report. The audit record information cannot be modified or permanently deleted using the EMS client applications. It can, however, be exported for archiving purposes as part of the record retention policy. Keeping in mind that audit log information can contain a significant amount of information, it is the responsibility of the administrative user to perform regular archiving of the log.

During the voting phase of the election event, ImageCast devices also keep an activity audit log which tracks events happening on the device itself.

13)   Describe the accessibility features of your proposed solution for voters with disabilities.

The ImageCast X and Image Cast Evolution are both designed to accommodate voters of all abilities. Below we detail the accessibility features of each unit.

ImageCast X Accessibility
Designed as a voting solution for all, the ImageCast X configured as either a Ballot Marking Device or Electronic Recordable Device offers several options for voters with accessibility needs to vote in a private and independent manner. The ImageCast X offers the following user interfaces:

- Visual mode: Voter navigates their ballot using one of the available accessibility tools and the visual display
- Audio mode: Visual display can be disabled, and the voter uses headphones to navigate an audio ballot using one of the available accessibility tools
- Visual & audio mode: Voter navigates their ballot using one of the available accessibility tools, the visual display, and the audio ballot
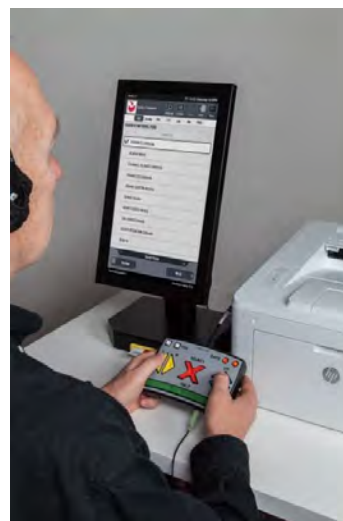
The ImageCast X BMD can present the ballot in audio only, or both audio and visual modes, depending on personal preference. Voters can adjust the rate and volume of their audio ballot, as wells as the text size and contrast of the display or disable the display entirely for added privacy. Every voter configurable option is automatically reset to its default value with the initiation of each new voting session.

Voters can review, verify and correct their selections prior to printing their ballot on the accompanying printer, if using the BMD configuration, or printing on the accompanying
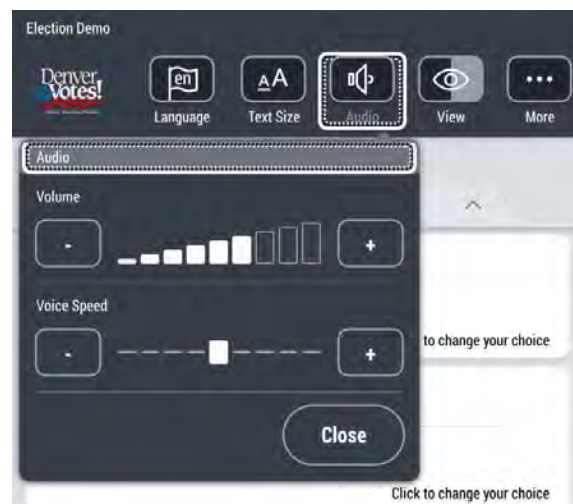
VVPAT printer if using the ERD configuration. Voters are warned if they have missed, or undervoted a contest, and have the opportunity to go back and correct their selections.

The ImageCast X BMD features the latest technological advances in accessible voting technology, providing more options for voters with accessibility needs to vote privately and independently.
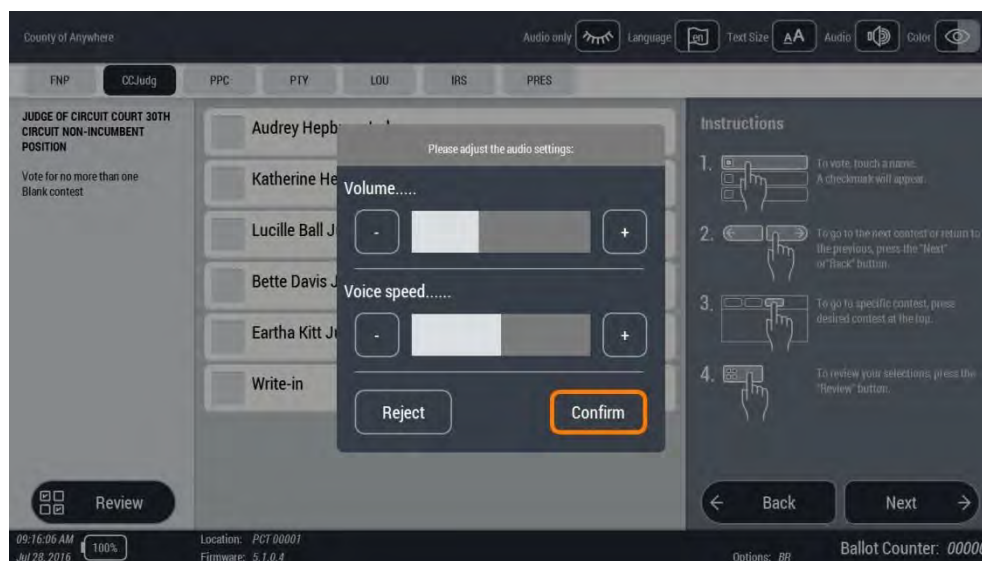
ImageCast Evolution Accessibility

The ImageCast Evolution exceeds accessibility standards of the Help America Vote Act (HAVA) of 2002, the Americans with Disabilities Act (ADA) of 1990, the Federal Rehabilitation Act of 1973, the Voting Rights Act of 1965, the California Elections Code, and the Elections Assistance Commission's VVSG 1.0.

The ImageCast Evolution features several accessible voting interfaces that allow voters with various disabilities to effectively vote, review and cast a paper ballot privately and independently. Voters who choose to cast their ballot through an accessible voting session have the option of having their ballot presented via audio and visual presentation on the screen, audio only, or visual presentation only.

The ImageCast Evolution presents the accessible voting session in a Contest-by-Contest mode displaying one contest after another. The contrast button allows the voter to display the screen image in high contrast (high contrast is a figure-to-ground ambient contrast ratio for text and informational graphics of at least 6:1). In Contest-by-Contest there are options to present the ballot in color, black and white, or white on black.

The text or size of the image can be increased or decreased in order to provide options for voters with visual impairments. The audio rate and volume can also be adjusted. Every voter configurable option is automatically rest to its default value with the initiation of each new voting session. Below is a screenshot of a voter adjusting the volume and voice speed of the audio ballot while in Contest-by-Contest mode:

Additional Accommodations

In addition to the touchscreen functionality, the ImageCast X and the ImageCast Evolution are compatible with a range of accessibility devices that voters can use to navigate through the ballot and make their selections. Both configurations are compatible with a hand-held controller called the Audio Tactile Interface (ATI), sip and puff device, or paddle device. It is simple for a poll worker to make the unit accessible – simply connect headphones and the Audio Tactile Interface (ATI).
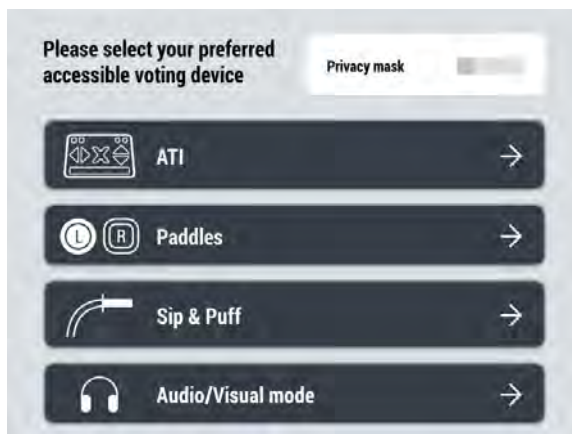
The Audio Tactile Interface (ATI) is the handheld device that is used by a voter during an Accessible Voting Session to navigate through and make selections to their ballot.

The ATI:

- Has raised keys that are identifiable tactilely without activation (i.e. raised buttons of different shapes and colors, large or Braille numbers and letters)
- Can be operated with one hand
- Includes a 3.5 mm headphone jack
- Includes a T-Coil coupling
- Has a T4 rating for interference
- Uses light pressure switches
- Can be equipped with a pneumatic switch, also known as a sip and puff device, or a set of paddles.

14) Have any third party groups vetted the accessibility and/or security features of your proposed solution? If so, please provide their assessments.

Yes. Dominion Voting works with accessibility experts and security experts as we are always seeking input from voters on ways to make our technology universally-inclusive, easy to use, and secure. Dominion Voting regularly consults with accessibility community stakeholders in the ongoing development of company products, including a longtime collaboration with the National Federation of the Blind (NFB). In fact, a Dominion Voting team conducted a demo of the ImageCast X system at NFB's national headquarters in May 2018, with overall positive reviews and feedback. Additional examples are included below:

Accessibility Experts

ImageCast X Usability Test Report

A usability test of the ImageCast X was conducted between July 27th and August 25th, 2016 in the Dominion offices and the Atlantis Community Center facility. The purpose of this test was to fulfill the requirements of the Voluntary Voting System Guidelines (VVSG) 1.0.

Testing took place in a simulated polling place with a registration desk, voting booths with the ImageCast X voting system, external printer, and accessibility peripherals. This configuration was set up at the Dominion offices in Denver, CO, and at the Atlantis Community Center in Denver, CO.

The results summary is below:

Results Summary	
Successful Completion	94%
Average Voting Time	3.11 min for general
	22.1 min for blind
	8.81 min for low vision
	9.21 min for limited dexterity
Minimum Voting Time	2 min
Maximum Voting Time	45 min
Voter Confidence	92% of the users had high confidence
Voter Satisfaction Score	86% of the users were satisfied with this system

After the user completed testing on the ImageCast X system, a post-session interview was conducted. The facilitator asked the user for insight on what problems they encountered, improvements they would make, whether they would use the system if available in the next election, if they had confidence in their vote being recorded accurately.

Vote Confidence Level of Participants	
Confidence Level	Number of Participants
100%	33
75%	1
25%	1
0%	1

System Preference	
Would use	89%
Would not use	11%

Accessibility, Usability, and Privacy Test Report

One of our trusted voting system certification laboratories, SLI, ran a compliance test report as a summary of the certification testing efforts for our Democracy Suite system in 2017.

Five volunteers were used to evaluate each device. Their physical concerns were varied, primarily by differing levels of fine motor control abilities. One volunteer had sight issues, which differed significantly from the others. Volunteer One was in a motorized wheel chair with movable desktop and had significant fine motor skill impediments. Volunteer Two was blind, but otherwise fully functioning. Volunteer Three was in a wheelchair, had no use of left arm, and pretty good coordination with right arm. Volunteer Four was in a wheelchair with near normal fine motor skills. Volunteer Five was in a motorized wheelchair, had some fine motor control impairment, but was able to use the touchscreen.

The sessions were a free form, ad-hoc test where the volunteer was able to vote a ballot in any manner that they chose. The volunteer provided feedback both in real-time as they were voting, as well as completing a survey after the ballot had been cast. Additionally, observations were made as each volunteer navigated their way through the process.

Michigan ADA Sessions
Working with the Michigan Bureau of Elections we facilitated a number of meetings and usability sessions to collect feedback on our ImageCast X product from December of 2017 to May of 2018. These sessions included advocates from the National Federation of the Blind, Michigan Protection and Advocacy Service, The Disability Network, and United Cerebral Palsy of Michigan as well as researchers from Michigan State University.

During the usability sessions, participants were given the opportunity to vote in mock elections using the ImageCast X and provide detailed feedback on how the products can be further developed to improve its accessibility. Many of these issues were communicated directly to our development team while others were documented for further exploration and inclusion in future releases.

Canadian National Institute for the Blind (CNIB)
By communicating with technical support staff and with institute members we are constantly working to get a better understanding of the latest technologies for vision-based accessibility and improve the usability of our products for all users.

In July and August of 2018, we worked with the CNIB to conduct a full usability study on our Internet Voting product to get a better understanding of how audio cues and button-based navigation can play a role in the voting process.

The ALS Society of Canada and March of Dimes
In June of 2018 we conducted a study with the help of the ALS Society of Canada and the March of Dimes to see how voters with limited mobility vote on the ImageCast X using a Sip and Puff device.

Security Experts
Dominions products undergo rigorous security testing as part of our EAC certification process and receive feedback through Voting System Testing Laboratories such as Pro V&V.

Other examples of third party security providers that provide feedback to Dominion includes:

SyleCop for Static Application Security Testing (SAST) – Dominion utilizes StyleCop, a static code analysis tool that helps ensure consistently formatted code is written in accordance with predefined rules. StyleCop analysis is performed daily (assessment is run against nightly builds), so the code is always up to date.

Kali Linux for Penetration Testing - Penetration testing performed with Kali Linux distribution includes: Port and Service Scans (Testing whether system remains stable during TCP port scan, UDP port scan, IP protocol scan, OS fingerprinting), Flooding Attacks (Testing whether system remains stable and retains administration during flooding attacks, SYN flood attacks, ESTABLISHED flood attacks, LAST_ACK flood attacks, FIN_WAIT flood attacks, CLOSING flood attacks), Fuzzing tests (Testing whether system endures malformed IPv4, IPv6, TCP, UDP, Ethernet, ICMP, ICMPv6 packets), Vulnerability scan (running Nessus scans), Credential strength testing (password cracking, searching for default credentials).

Nessus for Operating System Security Analysis – Benchmark compliance is achieved through application of Dominion Voting's custom scripts that harden the OS, which is then verified through Nessus scanning. Nessus is also used for scanning the system against all publicly known vulnerabilities. Found vulnerabilities are then patched using appropriate vendor and OS updates (since the system is not connected to the internet, the procedure for applying them is thoroughly documented and is performed manually by trained personnel).

15) **Does your solution include decommissioning of the existing voting system, including DREs, optical scanners, and electronic pollbooks? If so, please describe your decommissioning process.**

Dominion works with more than 1,300 jurisdictions throughout North America, including some clients that required decommissioning of the existing election systems and associated hardware components. Generally, decommissioning plans are developed during contract negotiations in order to capture the full scope of the work involved and account for any local, state or federal requirements (recycling, potential hazardous material handling, and proper disposal, among others).

As Dominion takes pride in our outstanding record of customer service, we would look forward to working with the state and individual jurisdictions to customize a plan that fully meets your needs.

16) **Provide a recommendation for a training plan that takes into account all stakeholders, which includes – at the minimum – state users, county election officials, voters, and voter advocacy entities.**

Dominion will work closely with the State to ensure that the training program is customized to meet your specific needs. Dominion will prepare and provide all needed

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training material, which includes training manuals, quick reference guides, presentations, and technical reference manuals when necessary. Training and curriculum particular to the resources, staff and needs of the State will be developed as part of the implementation meetings and materials will be provided before implementation for both hardware and software functions.

Dominion takes pride in our ability to transfer to local officials the skills necessary to conduct even complex elections with autonomy. Our suite of training materials (quick reference guides, checklists, procedures, manuals, and user guides) all contribute to ensuring that the State election team is knowledgeable and comfortable with all aspects of the system and election equipment.

Poll Worker Training
Past implementations have proven that it is very important for all poll workers to have a chance to operate the machines "hands-on" in class, or at least participate in small group and review. This allows poll workers to operate equipment while others observe and ask questions. Dominion will assist the State in integrating the new voting system training into its current poll worker training program's content and format, as well as in the development of training materials, and providing "train the trainers" courses. The goal is to assist in training poll workers to comfortably and confidently operate voting machines and readily provide voters with simple instructions and assistance in voting on them.

Voter Outreach Support
Dominion's Voter Outreach and Voter Education Program is a customizable service. Dominion would work alongside the State in creating a scope of work tailored to the specific needs and desires of the jurisdiction regarding staff training, voter outreach and education. This collaborative approach to voter outreach could involve any form of voter outreach and educational items that the State believes would aid in familiarization of voters with Dominion's voting technology, such as public demonstrations of the new voting equipment, a mock election, and how-to-vote resources that can be distributed on the State website.

Sample Curriculum
Our standard course offerings include the fill range of Democracy Suite classes. Training agendas and curriculum particular to the resources, staff and needs of the State will be developed as part of the implementation meetings.

ImageCast X Training
This course provides an introduction to the Dominion Voting ImageCast X, used for in-person and accessible voting. Topics include:
- Setup of equipment
- Security, including safeguards to prevent and detect tampering
- Opening polls
- Processing ballots
- Accessible voting
- Closing polls
- Transmission of election results

- Acceptance testing
- Troubleshooting – Identifying and resolving basic problems (issues that do not require a service call)
- Performing Logic and Accuracy testing

ImageCast Central Training

This course provides an introduction to the ImageCast Central. Topics include:
- Setup of the equipment
- Security, including safeguards to prevent and detect tampering
- Opening polls
- Processing and scanning ballots
- Adjudicating ballots that may require review
- Processing write-in votes
- Closing polls
- Acceptance testing
- Troubleshooting – Identifying and resolving basic problems (issues that do not require a service call)
- Performing Logic and Accuracy testing

Democracy Suite EMS Training

This course introduces election programming and results accumulation and reporting in Democracy Suite EMS. Topics include:
- System security
- Creating and editing geopolitical data
- Creating and editing offices and contests
- Adding choices
- Creating and editing ballot layout
- Programming the ImageCast DREs and the ImageCast Central
- Creating audio files for accessible voting
- Records preservation
- Tabulating and consolidating results
- Election night reporting (Results Tally and Reporting, including customizing and printing reports)
- Checks and balances – methods for ensuring the accuracy of precinct results
- Full understanding of audit procedures
- Any special requirements related to conducting a recount

17) Describe the useable components (e.g., paper and ink) of your voting system solution, including whether or not they are proprietary, have to be replaced by purchasing directly from you, or can be replaced commercially through other vendors?

Below, we provide the consumable products associated with the solutions available to Georgia:

Product Category	Product Name
Proposed Configuration	**ImageCast X withVVPAT**
EMS Workstations	ICX Smart Card Reader/Writer - ACR38U
ImageCast X - VVPAT	ICX VVPAT Paper Roll (245')
ImageCast X	ICX Prime Poll Worker Smart Card - Customized
ImageCast X	ICX Prime Technician Smart Card - Customized
ImageCast X	ICX Prime Voter Smart Card - Customized
ImageCast X	USB Flash Drive - 16GB - 3.0
ImageCast X	USB Flash Drive - 8GB - 3.0
ImageCast X	ICX Prime Backup Battery
ImageCast X	ICX Prime Dual Bay Battery Charger
Audio Tactile Interface	Cable - USB Audio to ICX ATI - 6'
Other	Headphone Covers
Other	Seals - Pull Up/Pull Tight - Plastic - Red (25/pkg)

Product Category	Product Name
Proposed Configuration	**ImageCast X with Ballot Marking Device**
EMS Workstations	ICX Smart Card Reader/Writer - ACR38U
ImageCast X	ICX Prime Poll Worker Smart Card - Customized
ImageCast X	ICX Prime Technician Smart Card - Customized
ImageCast X	ICX Prime Voter Smart Card - Customized
ImageCast X	USB Flash Drive - 16GB - 3.0
ImageCast X	USB Flash Drive - 8GB - 3.0
ImageCast X - BMD Printer	HP 402DNE - LaserJet Pro Printer
Audio Tactile Interface	Cable - USB Audio to ICX ATI - 6'
Other	Headphone Covers
Other	Seals - Pull Up/Pull Tight - Plastic - Red (25/pkg)

Product Category	Product Name
Proposed Configuration	**ImageCast Precinct and Evolution**

EMS Workstations	IButton Reader/Writer
EMS Workstations	ICP CompactFlash Card Reader/Writer
ImageCast Precinct ImageCast Evolution	Ibutton Security Key
ImageCast Precinct ImageCast Evolution	CompactFlash Memory Card - 16GB
ImageCast Precinct ImageCast Evolution	Paper Roll
ImageCast Precinct ImageCast Evolution	External Power Supply
Audio Tactile Interface	Cable - USB Audio to ICX ATI - 6'
Other	Headphone Covers
Other	Seals - Pull Up/Pull Tight - Plastic - Red (25/pkg)

ImageCast Central

The ImageCast Central and the accompanying G1130 scanner requires minimal consumables. The ICC Scanner Roller Kit is usually replaced after scanning 450,000 pages. These consumables are not proprietary equipment, and Dominion will work with the State and election officials to provide the needed consumables as they require.

Cleaning products used for general upkeep like Microfiber cleaning cloths, Isopropyl alcohol, and distilled water are recommended for general maintenance and upkeep.

Replacement Materials

Generally, components and consumables are sold in pre-packages kits for use with the system. Dominion cannot assume responsibility for items procured by a customer that have not been tested with our systems. Paper rolls, smart cards, USB flash drives, printers, etc. are all tested rigorously by our engineering teams prior to qualification. Many items do not get qualified as they do not meet our minimum standards or simply fail our testing. Therefore, we work closely with the customers to assure the proper certified material and components are being used with the system.

18) **For budget purposes, please provide an estimated cost of your voting system solution, including hardware, software, any necessary licenses, peripherals, implementation, decommissioning, training, and maintenance.**

For budgeting purposes, we have attached list pricing for the State of Georgia as a separate attachment. We would be happy to discuss volume pricing and discounted pricing scenarios in response to a Request For Proposal (RFP) or upon request.

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19) **For budget purposes, is there an option to lease equipment instead of purchasing equipment under your solution? If so, please provide an estimated cost to lease each component of your proposed solution where leasing is an option and whether the leasing option includes updates to the software.**

Yes. Dominion offers a Managed Service Agreement, which acts as a lease option. This option takes all of the applicable hardware, software, setup, implementation services, training, election setup and licensing and warranties and combines the costs into one single annual payment to be paid over a period of six to eight years. Any preventative maintenance will be included over the term of the contract. Under the MSA agreement, Dominion will fix or replace components of the system that are not third party or consumables. The pricing is calculated based on the final equipment and services that are chosen by the jurisdiction. Once complete, a finance charge is applied to the yearly MSA depending on the terms of the agreement.

20) **Describe your proposed solution's technical support system, including, but not limited to, how it will provide ongoing software and system support; conduct regular source code auditing and analysis; escrow source code; share information about source code auditing and reviews; share information about each code release; and offer security enhancements for state and local officials.**

Dominion's service organization will provide the coordination and supervision of all activities required to transition the State of Georgia to their new Democracy Suite voting system. We employ technical and project management experts who have demonstrated unmatched skill in understanding what resources are necessary to complete a project seamlessly and on time.

The proposed project team not only has considerable experience in providing ongoing support to election officials, but also in implementing new voting technology. Dominion has designed the State's project plan based on the following:

- Dominion's project plan adheres to PMBOK standards and practices.
- It is developed using MS Project and will be monitored/reported by using MS Project.
- It is designed with key milestones (clear tangible deliverables) that are designed to mitigate risk to the extent possible.
- Tasks are focused on accomplishing specific objectives.
- The work breakdown structure is a logical progression of steps, activities, and subtasks that lead to tangible work products or deliverables.
- Our plan provides the State with visibility into the tasks and schedule.
- Our plan incorporates Dominion's prior experience in successfully implementing voting systems.
- Our plan is achievable and will be used to manage to specific deadlines.

The draft project plan, for which we provide context and details below, is based on our current understanding of project requirements from the RFP and draws on our extensive, real world implementation experience.

This proposed project plan and schedule will be adjusted in consultation with key stakeholders to establish the "baseline" plan during Project Kick-Off.

Dominion subscribes to a collaborative management approach, where transparency, frankness, and open communications drive our projects. The key aspects to effective management are planning and control processes. We have developed tried and true project plans, and we implement controls to maintain schedules and quality standards.

Issue Management

During the normal course of implementing Democracy Suite, Dominion staff work closely with the State of Georgia to establish clear and timely information flow. This communication helps reduce the number of problems and support early identification of problems that require resolution through the Problem Escalation Procedure (PEP). Key to a successful PEP is ownership of a problem. The following table outlines the problem escalation path for the Dominion Team:
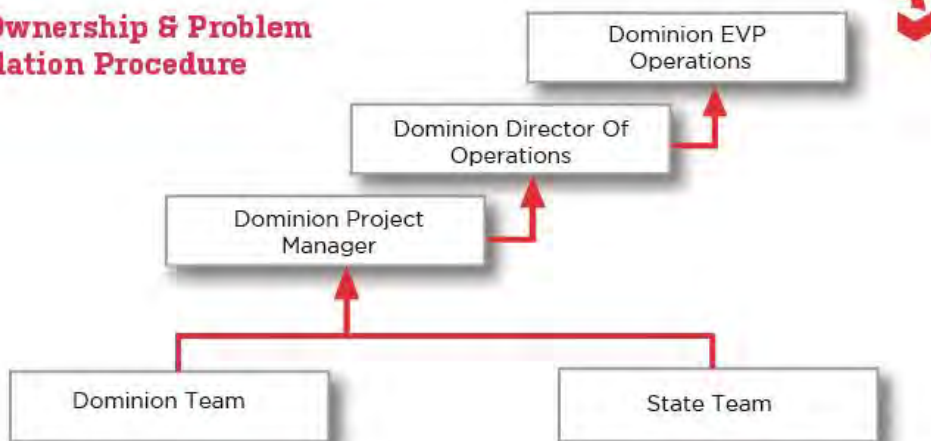
Another key to the PEP is process. The Dominion Project Manager will follow a well-defined and proven PEP process as depicted at a high level in the diagram below, Problem Escalation Procedure, and further detailed in this section.

Problem Escalation Procedure
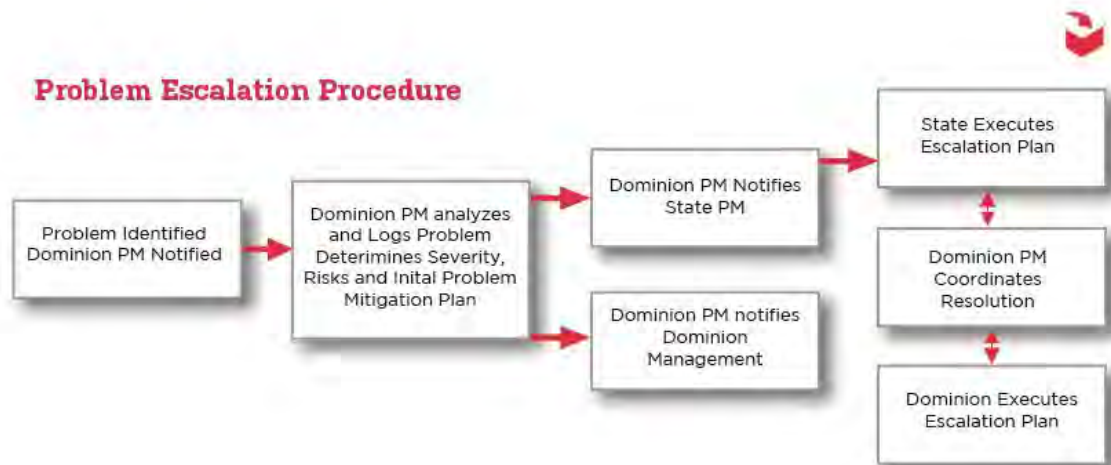
Problem Identification – Customer identifies a problem or Dominion proactively identifies a problem

Problem Analysis – The Dominion Project Manager will work with the individual that identified the problem and Dominion staff to clearly characterize the problem, assess its severity, and determine the initial mitigation strategy. The Dominion Project Manager will describe, document, and log the problem in Dominion's automated ticket tracking system. Dominion's Project Manager will notify appropriate Customer/Dominion staff of the severity and risk of the problem.

Problem Mitigation Plan (PMP) – The Dominion Project Manager will lead a team to identify the root cause, determine/document mitigation approach, and identify the management point of contact for approval of the PMP.

Mitigation Execution – The team will execute the approved PMP and track resolution.

Problem Escalation Process – The Dominion Project Manager will escalate a problem based on exceeding the resolution target time or at her discretion.

Problem Close-out – The Dominion Project Manager will document the problem, resolution, and lessons learned. The Dominion Project Manager will also close out the item on the problem and risk logs.

Since problems do not always occur during normal business hours, key stakeholders will be provided with emergency contact information that will allow our team to be reached outside of business hours (e.g., evenings, weekends, holidays, etc.) and on an emergency basis.

Our business is built on supporting customers to conduct elections in an error-free, secure, and on-time manner. The Dominion team designed our PEP to ensure that we address problems before they have an impact on an election. Higher-levels of service are

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provided during critical periods. Escalation always takes place to a position with a wider and deeper pool of resources at his/her disposal, to assist in resolution.

Risk Management

In addition to the project schedule, project risk management strategy and contingency planning is a critical component of the overall implementation plan. Best practice in risk management involves reducing the likelihood of occurrence of an undesired event and mitigating its effects once the event has occurred.

An early project activity is to work with stakeholders to understand potential risks and to put in place measures to reduce the probability and potential impact of these uncertain events. This activity includes a methodical process by which the project team identifies, scores, and ranks the various risks. High, medium and low potential risks are identified, along with the action to be taken for each identified risk. This is to reduce the probability of a negative occurrence or reduce its impact on the project. A comprehensive, Georgia-specific risk management plan will be developed and finalized during the initial phases of the implementation.

A sample listing of risks is provided below:

Risk	Mitigation Strategies	
	Prevention	**Recovery**
Election Management - Errors in programming that are not uncovered prior to ballot scanning	- Ballot proofing before ballots sent to printer - Comprehensive pre-election Logic and Accuracy testing of each voting machine using the Election Project database. Results reported by each voting machine are compared with a known result to ensure accuracy.	- Dominion technicians are available throughout the election period to respond to any unforeseen challenges that could arise
Election Reporting - Reports produced do not meet requirements	- The Dominion Voting project manager works closely with officials from the beginning of the project to ensure that report templates meet their needs - Reports are produced following the pre-election test, providing officials with the opportunity to see	- Dominion Voting's election management system provides a high degree of flexibility in the design of election reports. When called upon Dominion engineers are able to customize reports extremely quickly ensuring the all

		reports of actual election results		requirements are met.
Logistics - Delays in supply chain result in a short-fall of critical election supplies prior to the election	-	Dominion maintains an inventory of critical components in its warehouses around the country. - Dominion Voting's rigorous and proven project management systems identify long lead-time items early in the project, and project managers work with officials to arrange delivery	-	Preferred supplier arrangements allow immediate response for most items. - Dominion maintains strong relationships with major shipping firms, including a strategic partnership with one major independent shipper. In the past we have successfully used these relationships to assist customers.
Ballot - Poor ballot printing results in rejected ballots	-	Dominion Voting works to qualify printers prior to the election event. This includes more than just auditing their product quality - it includes training on required ballot parameters and ballot auditing procedures. - Qualification of paper vendors. The success of an optically tabulated election depends on the consistency of the ballots. Dominion has worked with paper suppliers to develop product specifications that provide the optimal paper for use in elections. - Dominion Voting conducts pre-election testing and the test election on ballots produced by the official ballot printer. This provides additional confidence that the Election Day ballots	-	Where appropriate the Dominion Voting project manager works with officials to implement best practices in ballot handling and distribution, to ensure robust, expedient processes – in line with State or County regulations –so that failed ballots do not disrupt the election.

	will meet necessary specifications.	
Unidentified Risks	- Ongoing collaboration with key stakeholders and within project team to update and revise risk register and to put in place risk mitigation strategies	- Defined during ongoing risk management processes

Schedule Management

Dominion has provided a preliminary project plan (schedule) as part of this RFP. This proposed project plan and schedule will be adjusted in consultation with key stakeholders to establish the "baseline" plan during Project Kick-Off. The project plan will be reviewed by the project team and any resources assigned to project tasks. The project team and resources must agree to the proposed assignments, durations, and schedule.

One of the essential components of our project management approach is regularly scheduled meetings with all key stakeholders from both the Dominion and the State's project teams. Dominion has proposed biweekly meetings, which can be held in person or on the phone depending on the project phase, which would include, at minimum, Dominion's Project Manager, Technical Lead and Executive Sponsor. These regular meetings are an opportunity to review progress against the baseline plan, and discuss any necessary changes, as well as address any other project issues or questions.

The biweekly meetings are in addition to ongoing weekly communication between the Dominion Project Manager and counterparts in the State, as required by the RFP. The biweekly meetings bring together key decision makers and stakeholders to ensure adequate project oversight.

Quality Assurance

Dominion uses multi-level quality assurance and quality control processes to ensure that all elements of our integrated voting system perform properly with every use. Independent reviews of election databases are conducted prior to Logic & Accuracy testing. We recommend (and support our customers to conduct) precinct-level pre-election testing.

In addition to this rigorous testing and control program designed to catch errors, Dominion Voting regularly conducts process audits of our acceptance testing, and programming processes to ensure that errors never occur.

Testing Phase Summary

EAC Certification

State Requirements Testing

State Certification Testing

Acceptance Testing

End-to-End test

Pre-LAT

Development and Federal Verification

State Verification

Election Preparation
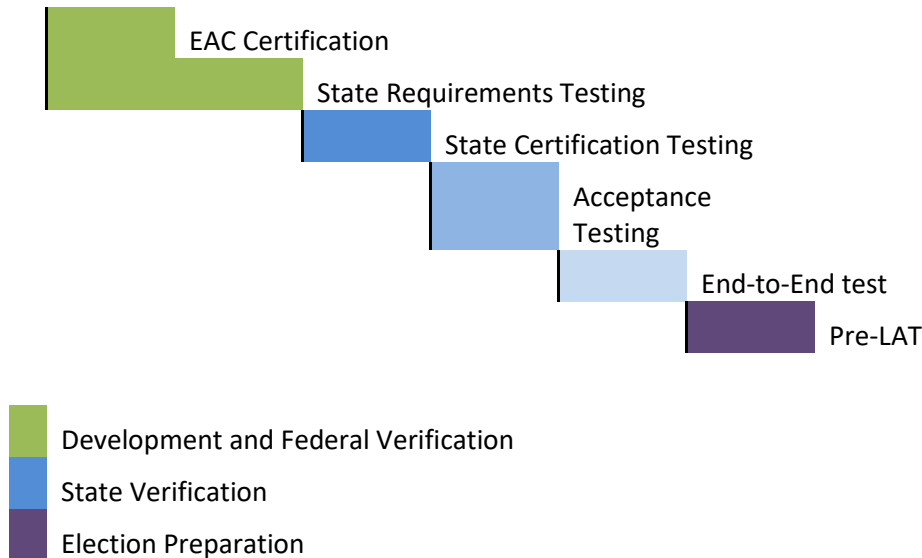
Dominion Voting tests its equipment to the highest standards in the industry. Our test plan is multi-layered and designed to complement State tests. Key attributes of the test plan are as follows:

1. EAC Certification – Dominion products are certified as EAC compliant. This is the highest certification standard in the industry and is your assurance that all products have undergone the highest level of testing.
2. State Requirements Testing – Dominion Engineers work to configure the EAC certified platform to meet the State of Washington's specific certification requirements.
3. State Certification Testing – Dominion's team works with the Secretary of State's office to demonstrate compliance of the system with state requirements.
4. Acceptance Testing – Each component of the system is tested for functionality at the customer site. Dominion will provide training and documentation to officials to assist them in undertaking this task.
5. End-to-End test – Dominion will work with the State to conduct end-to-end testing. We recommend that this test is completed following EMS training on a project reflecting Election Day requirements. In this test, an election project is created, and a representative sample of tabulators is programmed. Test ballots with known results are prepared and cast. Results are uploaded into the election management system and reports generated. The results are then compared to the

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expected outcomes to verify the system is performing properly. This test is performed on site at the customer warehouse.

6. Pre-Election Logic & Accuracy Testing – In advance of all elections, Dominion Voting recommends that Logic & Accuracy Testing of each voting system is tested with final Election Day ballots. This complete end-to-end test provides certainty that the system will perform as planned on Election Day. This test is performed on site at the customer warehouse.

7. Automated Test Deck Creation – The creation of automated, comprehensive test decks is an optional service provided by Dominion to assist customers in conducting Logic & Accuracy testing. Using the Election Day database, a series of pre-marked ballots are generated based on a computer algorithm designed to provide the highest assurance of system accuracy. When scanned these decks create known outcomes that can be compared with tabulated results. The elimination of error due to mistakes in hand-marking provides a higher degree of confidence in test results.

Change Control

Once the State approves the baseline plan, changes, if any, will follow a formal change control process, where Dominion's Project Manager will update the plan as required in consultation with counterparts from the State.

The following steps comprise Dominion's organization change control process for all projects and will be used for the implementation:

1. Identify the need for a change (Any Stakeholder)
    Requestor will submit a completed Dominion change request form to the Project Manager.
2. Log the change in the change request register (Project Manager)
    The Project Manager will maintain a log of all change requests for the duration of the project.
3. Conduct an evaluation of the change (Project Manager, Project Team, Requestor)
    The Project Manager will conduct an evaluation of the impact of the change to cost, risk, schedule, and scope.
4. Submit change request to Project Sponsor (Project Manager)
    The Project Manager will submit the change request and analysis to the Sponsor for review.
5. Project Sponsor decision
    The Project Sponsor will evaluate and discuss the proposed change and decide whether it will be approved based on all submitted information
6. Implement change (Project Manager)

If a change is approved by the Project Sponsor, the Project Manager will update and re-baseline project documentation as necessary as well as ensure any changes are communicated to the team.

Updates and Upgrades

Any software changes, upgrades, modifications, updates, patches, etc. are typically included in upcoming full releases of the software. The State will have ongoing visibility

as to which future version of Democracy Suite will include any Washington-specific upgrades or updates; Dominion will devise an upgrade plan as required with the State.

The proposed voting system is supported by Dominion for the duration of the agreement with the State or individual Counties.

Dominion is constantly working with Commercial Off The Shelf equipment providers, such as Canon and Dell, to ensure visibility regarding End Of Life components and available replacements. This is done in conjunction with managing ongoing state and federal certification campaigns, to ensure that Democracy Suite remains fully operational and available to customers. Wherever possible Dominion, strives to integrate any new product offerings and enhancements to the currently certified system version to prevent having to replace certain infrastructure components. However, major upgrades often require the upgrade of dell/Microsoft related equipment and software.

Dominion understands that election officials need to ensure that the significant investment required to upgrade a voting system is made with confidence and peace of mind that the technology will keep up with changing requirements and public expectations. Dominion's development team is continually working on refining existing products and functionality, leading to annual VVSG 2005 certification campaigns with the EAC, as well as state certifications where required.

21) **Describe the physical and power attributes of your Ballot Marking Devices, Digital Scanners & Tabulators, High Speed Scanners and Tabulators, and Statewide Electronic Pollbook System, including but not limited to:**

- **Dimensions;**
- **Weight;**
- **Battery backup system capabilities; and**
- **Power needs and ability to daisy chain equipment to a power source.**

Below we provide the requested attribute information for each hardware component associated with the solutions:

ICX with BMD

ImageCast X Prime 21" Tablet Specifications	BMD Printer Specs
Manufacturer: Avalue Model: HID-21V OS: Android 5.1.1. Processor: Intel Celeron J1900 Power: DC 19V input Weight: 19.5 lbs (including battery) Dimensions: 22" (H) x 13.5" (W) x 2.9" (D) Battery Backup Life: 2 hour minimum	Manufacturer: HP Model: Laser Printer M402DNE Power: DC 19V input Dimensions: 8.5 " (H) x 15" (W) x 14.06" (D) Weight: 19 lbs.

ICX with VVPAT

ImageCast X Prime 21" Tablet Specifications	VVPAT Printer Unit Specs
Manufacturer: Avalue Model: HID-21V OS: Android 5.1.1. Processor: Intel Celeron J1900 Power: DC 19V input Weight: 19.5 lbs (including battery) Dimensions: 22" (H) x 13.5" (W) x 2.9" (D) Battery Backup Life: 2 hour minimum	Manufacturer: KFI Model: VRP3 Power: DC 19V input Weight: 6 lbs Dimensions: 15" x 7" x 6.5"

ImageCast Central Kit

Includes Canon DR-G1130 scanner, Dell OptiPlex 7440 AIO computer, one 8GB flash memory card, one i-Button (black), one i-Button Programmer with USB Adapter, patch cable 25', Lexar LRW400CRBNA reader.

Dell OptiPlex 7440 AIO Computer Specs:
Processor: Intel® Core™ i3-6100 Processor (Dual Core, 3MB, 4T, 3.7GHz, 65W) ...
Operating System: (Dell recommends Windows 10 Pro.)
Monitor: 23.8" WLED Full-HD AIO Non-Touch Display.
Memory: 1 4GB2 DDR4 at 2133MHz. ...
Hard Drive: 2.5 inch 500GB 7200rpm Hard Disk Drive
Approximate weight: 15.9 lbs
Approximate Dimensions: 15.5" (W) x 22.6" (D) x 2.5" (H)

Scanner: Canon Model DR-G1130 Specs
Feeder Capacity: 48 mm stack or 500 sheets of 80 g/m² (20 lb bond)
Scanning Resolution: 150 x 150 dpi, 200 x 200 dpi, 240 x 240 dpi, 300 x 300 dpi, 400 x 400 dpi, 600 x 600 dpi
Scanning Speed: B&W 100 ppm Portrait/130 ppm Landscape
Power: AC 100V (50/60Hz), AC 120V (60Hz), AC220-240V (50/60Hz)
Approximate weight: 50.3 lbs
Approximate dimensions: 18.9" (W) x 21.1" ((D) x 12.4" (H)

ImageCast Evolution

Manufacturer: Dominion
Model number: PCOS-410A
Power: 19V AC
Operating System: Linux
Processor: NXP PowerPC (MPC8347EVVAJDB)
Modem: External Multi-Tech HSPA USB Modem
Approximate Weight: 45 lbs.
Approximate Dimensions: 19.7" (W) x 23.4" (D) x 5.9" (H)

The overall size of the ballot box with the lid on is 25" (W) by 38" (D) by 44"
(H) and the weight is 85 pounds.

ImageCast Precinct

Manufacturer: Dominion?   **Model number:** PCOS-330A   **Power:** 16V AC   **Operating System:** Linux   **Processor:** NXP ColdFire (SCF5249VM140)   **Modem**: External Edeice CellGo Modem   **Approximate Weight:** 14 lbs.   **Approximate Dimensions:** 17" (W) x 13" (D) x 3.5" (H)   The overall size of the ballot box with the lid on is 25" (W) by 38" (D) by 44" (H) and the weight is 85 pounds.

22) **Describe any special storage requirements associated with the components of your proposed solution including climate control specifications and stacking restrictions.**

Democracy Suite EMS Servers and Workstations, and ImageCast Central

For the EMS server and workstations, and central count system, normal office environmental conditions are required. This portion of the system relies on COTS hardware, designed for its robustness and resiliency. The City's IT policy around server room management, and other environmental precautions, should be followed.

Storage and Operating temperatures – EMS system:

- As cool as possible
- Maintain a storage temperature between 41 °F and 149 °F
- Maintain an operating temperature between 41 °F and 95 °F

Storage and operating temperatures - ImageCast Central Workstation and Canon Scanners:

- As cool as possible
- Maintain a storage and operating temperature between 50 °F and 90.5 °F
- The humidity should be between 20% and 80% RH

ImageCast X

For best lifetime, follow the storage recommendations described below for the ImageCast X:

- Operating Temperature min/max: 0°C ~ 40°C
- Storage Temperature min/max: -20°C ~ 60°C
- Operating and/Storage Conditions (Relative Humidity): From 0% ~ 90% RH non-condensing
- Pack the ImageCast X tablet into its provided packaging box with foam inserts to provide vibration and impact protection.

The ImageCast X units should not be stacked on top of one another for storage unless they are in their respective carrying cases or packaging boxes (Maximum Stack = 5 Boxes High).

ImageCast Precinct and ImageCast Evolution

Storage facilities should provide protection from destructive environmental conditions – rain, high temperature, blowing dust, etc. Please follow the storage recommendations described below for the ImageCast Evolution:

- Operating Temperature min/max: From 41 - 104°F (5°C - 40°C)
- Storage Temperature min/max: From 32 - 140°F (-25°C - 60°C)
- Operating and/Storage Conditions (Relative Humidity): From 20% - 80% RH non-condensing
- Place the tabulator inside the re-sealable bag into the provided packaging box with foam inserts to provide vibration and impact protection.
- Store the packaged tabulator box under conditions specified.
- Alternatively, leave the tabulator on the Ballot Box but place the Ballot Box dust cover over it to keep it free from environmental elements.
- Store the tabulator (and Ballot Box, if applicable) in a dust-free, clean environment.
- Perform periodic charging of the back-up battery module for 12 hours every 9 months.
- The tabulators should not be stacked on top of one another for storage unless they are in their respective carrying cases or packaging boxes (Maximum Stack
- = 4 Boxes High)

For delivery to the polling location, the ImageCast tabulator units can be mounted to the ballot box, and peripherals can be placed inside the ballot box.

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23) In what states and jurisdictions therein, has your proposed solution been installed?

Dominion Voting Systems, Inc. is a company that has distinguished itself by pursuing excellence in customer service by implementing a technical culture focused on achieving the highest levels of accuracy, reliability and transparency in elections since 2003. As an established election provider in the United States, with a diverse customer base of 33 states, out of which jurisdictions in 19 states have successfully implemented our Democracy Suite system. We are providing a snapshot of the reach and diversity of our experience:

- Clark County, Nevada was the first to deploy the ImageCast X with fully accessible Voter Verified Paper Audit Trail (VVPAT).
- Currently supporting a diverse customer base in California of 30 counties, including 12 who have transitioned to Democracy Suite.
- Democracy Suite was chosen as the statewide voting system of choice in Colorado. The State is streamlining their processes with the ImageCast X, ImageCast Central, and Adjudication.
- The State of Michigan ranked Democracy Suite #1 out of 5 major vendors. Over 65 counties will be implementing Democracy Suite in 2017-2018.
- 52 counties in New York have implemented the ImageCast Precinct, the first all-in-one Ballot Marking Device.
- Louisiana experienced greater efficiency after the statewide implementation of the ImageCast Central in 2011.
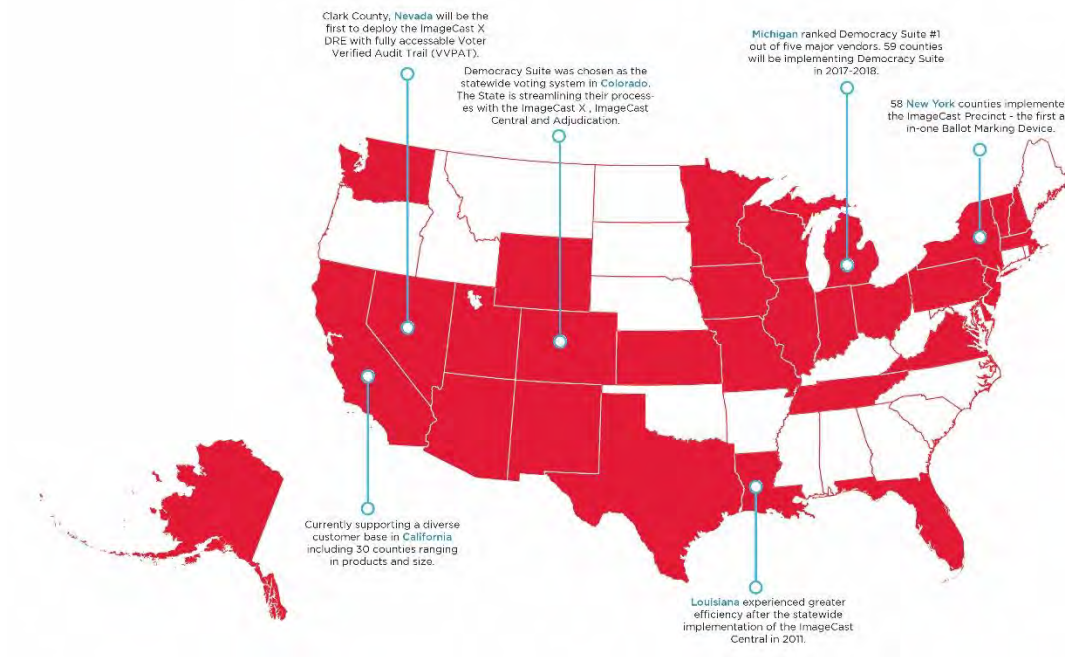
Below is a representative list of election jurisdictions where the Democracy Suite system has been deployed or is scheduled to be deployed, including the key components used (ImageCast Central – ICC, ImageCast Evolution – ICE, ImageCast Precinct – ICP, ImageCast X – ICX, Adjudication – ADJ) and the year of signed business.

The State of Alaska
- City and Borough of Sitka (ICP-A, 2014)
- City of Valdez (ICP, 2015)
- The Municipality of Anchorage (ICX, ICC, ADJ, 2017)
- The City of Bethel (ICP, 2017)
- The City and Borough of Ketchikan (ICP, 2017)

The State of California
- Del Norte County (ICE, ICC, ADJ, 2015)
- Glenn County (ICE, ICC, ADJ, 2016)
- Imperial County (ICE, ICC, ADJ, 2015)
- Kern County (ICC, ADJ, 2015)
- Napa County (ICE, ICC, ADJ, 2015)
- Siskiyou County (ICE, ICC, ADJ, 2015)
- Tehama County (ICE, ICC, ADJ, 2016)
- Mono County (ICE, 2017)
- Monterey County (ICC, 2017)
- San Luis Obispo County (ICX, ICC, ADJ 2018)
- Sacramento County (ICX, ICC, ADJ 2018)
- Contra Costa County (ICX, ICC, ADJ 2018)

The State of Colorado
- Adams County (ICX, ICC, ADJ, 2016)
- Arapahoe County (ICX, ICC, ADJ, 2016)
- Chaffee County (ICX, ICC, ADJ, 2016)
- Gilpin County (ICX, ICC, ADJ, 2016)
- Gunnison County (ICX, ICC, ADJ, 2016)
- City and County of Denver (ICX, ICC, ADJ, 2016)
- Mesa County (ICX, ICC, ADJ, 2016)
- Moffat County (ICX, ICC, ADJ, 2016)
- Baca County (ICX, ICC, ADJ, 2016)
- Broomfield County (ICX, ICC, ADJ, 2016)
- Clear Creek County (ICX, ICC, ADJ, 2016)
- Eagle County (ICX, ICC, ADJ, 2016)
- Logan County (ICX, ICC, ADJ, 2016)

- Pitkin County (ICX, ICC, ADJ, 2016)
- Teller County (ICX, ICC, ADJ, 2016)
- Park County (ICX, ICC, ADJ, 2016)
- Pueblo County (ICX, ICC, ADJ, 2016)
- Sedgwick County (ICX, ICC, ADJ, 2016)
- Washington County (ICX, ICC, ADJ, 2016)
- Alamosa County (ICX, ICC, ADJ, 2017)
- Archuleta County (ICX, ICC, ADJ, 2017)
- Bent County (ICX, ICC, ADJ, 2017)
- Boulder County (ICX, ICC, ADJ, 2017)
- Conejos County (ICX, ICC, ADJ, 2017)
- Cheyenne County (ICX, ICC, ADJ, 2017)
- Crowley County (ICX, ICC, ADJ, 2017)
- Costilla County (ICX, ICC, ADJ, 2017)
- Delta County (ICX, ICC, ADJ, 2017)
- Dolores County (ICX, ICC, ADJ, 2017)
- Elbert County(ICX, ICC, ADJ, 2017)
- El Paso County (ICX, ICC, ADJ, 2017)
- Fremont County (ICX, ICC, ADJ, 2017)
- Grand County (ICX, ICC, ADJ, 2017)
- Huerfano County (ICX, ICC, ADJ, 2017)
- Jefferson County (ICX, ICC, ADJ, 2017)
- Kiowa County (ICX, ICC, ADJ, 2017)
- Kit Carson County (ICX, ICC, ADJ, 2017)
- Lake County (ICX, ICC, ADJ, 2017)
- La Plata County (ICX, ICC, ADJ, 2017)
- Las Animas County (ICX, ICC, ADJ, 2017)
- Lincoln County (ICX, ICC, ADJ, 2017)
- Otero County (ICX, ICC, ADJ, 2017)
- Ouray County (ICX, ICC, ADJ, 2017)
- Moffat County (ICX, ICC, ADJ, 2017)
- Montezuma County (ICX, ICC, ADJ, 2017)
- Montrose County (ICX, ICC, ADJ, 2018)
- Morgan County (ICX, ICC, ADJ, 2017)
- Phillips County (ICX, ICC, ADJ, 2017)
- Prowers County (ICX, ICC, ADJ, 2017)
- Rio Grande County (ICX, ICC, ADJ, 2017)
- Routt County (ICX, ICC, ADJ, 2017)
- San Miguel County (ICX, ICC, ADJ, 2017)
- Summit County (ICX, ICC, ADJ, 2017)

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- Yuma County (ICX, ICC, ADJ, 2017)

The State of Florida
- Alachua County (ICE, ICC, 2015)
- Baker County (ICE, 2013)
- Columbia County (ICE-DD, ICC, 2017)
- Jefferson County (ICE, 2018)
- Hardee County (ICE, 2013)
- Hernando (ICE-DD, ICC, MBP, 2015)
- Leon County (ICE, ICC, 2014)
- Levy County (ICE, 2014)
- Madison County (ICE, 2013)
- Monroe County (ICE, 2013)
- Okeechobee County (ICE, 2016)
- St Lucie County (ICE, ICC, 2014)
- Dixie County (ICE, 2018)
- DeSoto County (ICE, 2018)
- Gilchrist County (ICE-DD, 2018)
- Taylor County (ICE, 2017)

The State of Iowa
- Adair County (ICP-BMD, 2015)
- Appanoose County (ICP-BMD, 2016)
- Bremer County (ICP-BMD, 2016)
- Cedar County (ICP BMD, 2013)
- Hardin County (ICP-BMD, ICC, 2015)
- Lucas County (ICP-BMD, 2016)
- Mitchell County (ICP-BMD, 2015)
- Wayne County (ICP-BMD, 2016)
- Dickinson County (ICP, ICC, 2017)

The State of Kansas
- Lane County (ICP-BMD Audio, 2015)
- Reno County (ICP, ICX, 2017)
- Thomas County (ICP, ICX, ICC, 2017)

The State of Louisiana
- All 64 parishes (ICC, 2011)

The Commonwealth of Massachusetts

State of Georgia
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(services provided by LHS Associates)

- Agawam (ICP, 2016)
- Amesbury (ICP, 2017)
- Andover (ICP, 2017)
- Ashland (ICP, 2016)
- Athol (ICP, 2017)
- Attleboro (ICP, 2016)
- Auburn (2016)
- Belchertown (ICP, 2017)
- Bellingham (ICP, 2016)
- Beverly (ICP, 2017)
- Blackstone (ICP, 2016)
- Boxford (ICP, 2016)
- Brimfield (ICP, 2016)
- Brockton (ICP, 2016)
- Cheshire (ICP, 2016)
- Clinton (ICP, 2015)
- Cohasset (ICP, 2016)
- Dartmouth (ICP, 2017)
- Dedham (ICP, 2016)
- Dover (ICP, 2017)
- Dracut (ICP, 2017)
- Duxbury (ICP, 2016)
- East Bridgewater (ICP, 2017)
- Eastham (ICP, 2014)
- Easton (ICP, 2016)
- Falmouth (ICP, 2016)
- Fitchburg (ICP, 2015)
- Georgetown (ICP, 2017)
- Granby (ICP, 2016)
- Great Barrington (ICP, 2016)
- Groton (ICP, 2016)
- Holden (ICP, 2017)
- Holliston (ICP, 2016)
- Hudson (ICP, 2014)
- Leominster (ICP, 2015)
- Longmeadow (ICP, 2016)
- Lynnfield (ICP, 2016)
- Manchester-by-the-Sea (ICP, 2017)

- Mansfield (ICP, 2014)
- Methuen (ICP, 2017)
- Middleborough (ICP, 2016)
- Monson (ICP, 2017)
- Needham (ICP, 2015)
- Newbury (ICP, 2015)
- North Andover (ICP, 2017)
- Northfield (ICP, 2016)
- Norton (ICP, 2016)
- Orange (ICP, 2016)
- Pembroke (ICP, 2017)
- Pepperell (ICP, 2017)
- Plainville (ICP, 2014)
- Plymouth (ICP, 2017)
- Quincy (ICP, 2016)
- Reading (ICP, 2016)
- Rockport (ICP, 2015)
- Rutland (ICP, 2017)
- Sherborn (ICP, 2014)
- Shirley (ICP, 2015)
- South Hadley (ICP, 2015)
- Southborough (ICP, 2017)
- Uxbridge (ICP, 2016)
- Wales (ICP, 2016)
- Walpole (ICP, 2016)
- Wareham (ICP, 2016)
- Wellesley (ICP, 2016)
- Wenham (ICP, 2016)
- West Boylston (ICP, 2016)
- Westminster (ICP, 2016)
- Weston (ICP, 2015)
- Westwood (ICP, 2016)
- Winchendon (ICP, 2016)
- Winchester (ICP, 2016)
- Winthrop (ICP, 2017)

The State of Michigan
- Alger County (ICP, ICX-BMD, 2017)
- Allegan County (ICP, ICX-BMD, 2018)
- Antrim County (ICP, ICX-BMD, 2018)

- Baraga County (ICP, ICX-BMD, 2018)
- Barry County (ICP, ICX-BMD, 2018)
- Benzie County (ICP, ICX-BMD, 2018)
- Berrien County (ICP, ICX-BMD, 2017)
- Branch County (ICP, ICX-BMD, 2017)
- Calhoun County (ICP, ICX-BMD, 2017)
- Cass County (ICP, ICX-BMD, 2017)
- Charlevoix County (ICP, ICX-BMD, 2017)
- Chippewa County (ICP, ICX-BMD, 2018)
- Clare County (ICP, ICX-BMD, 2017)
- Crawford County (ICP, ICX-BMD, 2018)
- Delta (ICP, ICX-BMD, 2017)
- Dickinson County (ICP, ICX-BMD, 2018)
- Gladwin County (ICP, ICX-BMD, 2017)
- Gogebic County (ICP, ICX-BMD, 2018)
- Gratiot County (ICP, ICX-BMD, 2017)
- Houghton County (ICP, ICX-BMD, 2017)
- Huron County (ICP, ICX-BMD, 2017)
- Ingham County (ICP, ICX-BMD, 2017)
- Iosco County (ICP, ICX-BMD, 2017)
- Iron County (ICP, ICX-BMD, 2018)
- Isabella County (ICP, ICX-BMD, 2017)
- Jackson County (ICP, ICX-BMD, 2017)
- Kalkaska County (ICP, ICX-BMD, 2017)
- Kent County (ICP, ICX-BMD, 2017)
- Keweenaw County (ICP, ICX-BMD, 2018)
- Lake County (ICP, ICX-BMD, 2018)
- Lapeer County (ICP, ICX-BMD, 2017)
- Leelanau County (ICP, ICX-BMD, 2018)
- Lenawee County (ICP, ICX-BMD, 2017)
- Luce County (ICP, ICX-BMD, 2017)
- Mackinac County (ICP, ICX-BMD, 2017)
- Manistee County (ICP, ICX-BMD, 2017)
- Marquette County (ICP, ICX-BMD, 2017)
- Mescota County (ICP, ICX-BMD, 2017)
- Menominee County (ICP, ICX-BMD, 2017)
- Midland County (ICP, ICX-BMD, 2018)
- Missaukee County (ICP, ICX-BMD, 2017)
- Monroe County (ICP, ICX-BMD, 2017)
- Montmorency (ICP, ICX-BMD, 2018)

- Newaygo County (ICP, ICX-BMD, 2017)
- Oceana County (ICP, ICX-BMD, 2018)
- Ogemaw County (ICP, ICX-BMD, 2018)
- Ontonagon County (ICP, ICX-BMD, 2018)
- Osceola County (ICP, ICX-BMD, 2018)
- Oscoda County (ICP, ICX-BMD, 2018)
- Otsego (ICP, ICX-BMD, 2017)
- Presque Isle (ICP, ICX-BMD, 2018)
- Saginaw County (ICP, ICX-BMD, 2018)
- Sanilac County (ICP, ICX-BMD, 2017)
- Schoolcraft County (ICP, ICX-BMD, 2017)
- Shiawassee County (ICP, ICX-BMD, 2017)
- St. Clair County (ICP, ICX-BMD, 2017)
- St. Joseph County (ICP, ICX-BMD, 2017)
- Tuscola County (ICP, ICX-BMD, 2017)
- Van Buren County (ICP, ICX-BMD, 2017)
- Wayne County (ICP, ICX-BMD, 2017)
- Wexford County (ICP, ICX-BMD, 2018)

The State of Minnesota
- Dakota County (ICE, ICC, 2015)
- Scott County (ICE, ICC, 2015)
- Sherburne County (ICE, ICC, 2016)

The State of Missouri
- Adair County (ICP-BMD, 2015)
- Callaway County (ICP-BMD, 2015)
- Carroll County (ICP-BMD, 2015)
- Crawford County (ICP-BMD, 2015)
- Gasconade County (ICP-BMD, 2015)
- Grundy County (ICP-BMD, 2015)
- Harrison County (ICP-BMD, 2016)
- Jasper County (ICP-BMD, 2015)
- Livingston County (ICP- BMD, 2015)
- Lafayette County (ICP-BMD, 2015)
- Maries County (ICP-BMD, 2015)
- Mercer County (ICP-BMD, 2015)
- McDonald County (ICP-BMD, 2014)
- Montgomery County (ICP-BMD, 2016)
- Newton County(ICP-BMD, 2015)

- Nodaway County (ICP-BMD, 2015)
- Osage County (ICP-BMD, 2015)
- Pike County (ICP- BMD, 2015)
- Saline County (ICP-BMD, 2015)
- Warren County (ICP-BMD, 2014)
- Butler County (ICP-BMD, 2017)

The State of Nevada
- Churchill County (ICX with VVPAT, ICC, ADJ, 2018)
- Clark County (ICX with VVPAT, ICC, ADJ, 2017)
- Douglas County (ICX with VVPAT, ICC, ADJ, 2018)
- Elko County (ICX with VVPAT, ICC, ADJ, 2018)
- Esmerelda County (ICX with VVPAT, ICC, ADJ, 2018)
- Eureka County (ICX with VVPAT, ICC, ADJ, 2018)
- Humboldt County (ICX with VVPAT, ICC, ADJ, 2018)
- Lander County (ICX with VVPAT, ICC, ADJ, 2018)
- Lincoln County (ICX with VVPAT, ICC, ADJ, 2018)
- Lyon County (ICX with VVPAT, ICC, ADJ, 2018)
- Mineral County (ICX with VVPAT, ICC, ADJ, 2018)
- Nye County (ICX with VVPAT, ICC, ADJ, 2018)
- Pershing County (ICX with VVPAT, ICC, ADJ, 2018)
- Story County (ICX with VVPAT, ICC, ADJ, 2018)
- Washoe County (ICX with VVPAT, ICC, ADJ, 2017)
- White Pine County (ICX with VVPAT, ICC, ADJ, 2018)

The State of New Jersey
- Burlington County (ICC, 2014)
- Camden County (ICC, 2013)
- Cape May County (ICC, 2013)
- Cumberland County (ICC, 2015)
- Essex County (ICC, 2013)
- Gloucester County (ICC, 2015)
- Hudson County (ICC, 2013)
- Hunterdon County (ICC, 2015)
- Mercer County (ICC 2013)
- Monmouth County (ICC, 2014)
- Morris County (ICC, 2015)
- Passaic County (ICC, 2015)
- Salem County (ICC, 2015)

- Union County (ICC, 2013)

All 33 counties in the State of New Mexico
(ICC, ICE, ICP-BMD, ICP, 2014)

52 Counties in the State of New York
(all except Albany, Erie, Nassau, Rockland, Schenectady and the five boroughs of New York City) (ICP, ICP-BMDICC, 2008)

The State of Ohio
- Belmont County (ICP-A, ICC, 2015)
- Guernsey County (ICE, ICC, 2013)
- Harrison County (ICP, ICE, ICC, 2014)
- Huron County (ICC, ICE, ICP-A, MBP, 2015)
- Muskingum County (ICP, ICE, ICC, ADJ, 2017)

The State of Tennessee
- Hamilton County (ICE, ICP-A, ICC, 2013)

The Commonwealth of Virginia
- Amelia County (ICE, 2016)
- Bedford County (ICE, 2015)
- Buchanan County (ICE, 2015)
- Craig County (ICE, 2015)
- Caroline County (ICP-BMD, 2015)
- Dickenson County (ICE, 215)
- Franklin County (ICE, 2015)
- King George County (ICP-BMD, 2014)
- Lee County (ICE, 2015)
- Buena Vista City (ICE, 2017)
- Sussex County (ICE, 2017)
- Smyth County (ICE, 2017)
- Greensville County (ICE, 2017)
- Louisa County (ICE, 2015)
- Mecklenburg County (ICE, 2015)
- Nottoway County (ICE, 2015)
- Page County (ICP- BMD, 2016)
- Radford City (ICE, 2016)

- Russell County (ICE, 2015)
- Salem City (ICE, 2016)
- Suffolk City (ICE, 2015)
- Waynesboro City (ICE, 2016)

The State of Washington
- Franklin County (ICX, ICC, AADJ, 2017)

The State of Wisconsin
- Door County (ICE, 2015)
- Fond du Lac County (ICE, 2016)
- Green County (ICE, 2015)
- Ozaukee County (ICE, 2016)
- Vilas County (ICE, 2016)
- Washington County (ICE, 2016)
- Winnebago County (ICE, 2015)

The Commonwealth of Puerto Rico
(ICP, 2016)

EXHIBIT

D

IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, et al.	)	
	)	
Plaintiff,	)	
	)	**CIVIL ACTION FILE NO.: 1:17-cv-**
vs.	)	**2989-AT**
	)	
BRIAN P. KEMP, et al.	)	
	)	
Defendant.	)	
	)	

DECLARATION OF MEGAN MISSETT

MEGAN MISSETT hereby declares as follows:

1. I have personal knowledge of all facts stated in this declaration, and if called to testify, I could and would testify competently thereto.

2. I am a Georgia voter, registered to vote at my residence at ███████████

   ████████████████

3. I am a member of the Coalition for Good Governance.

4. I will vote in the March 24, 2020 primary election, and all other elections in the jurisdictions in which I am eligible to vote. For many years I have been an active and frequent Fulton County voter and volunteer hundreds of hours a year to encourage others to vote.

5. I have not yet decided how I will vote if ballot marking devices with barcodes are installed in Fulton County. I am torn and frustrated about this

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dilemma because the two choices the State permits do not support secure

verifiable ballots that can be cast on election day in my polling place.

6. I prefer to vote on Election Day at my neighborhood precinct with my

friends and participate with my neighbors in the community exercise of

voting, and also with the Election Day benefit of having the latest news and

information on questions and candidates on the ballot.

7. I greatly value the experience of voting on Election Day in my neighborhood

as a shared civic experience, however, Georgia continues to make this a

more difficult choice to make if I want to ensure that I will be permitted to

vote without obstacles created by erroneous pollbooks, to cast a vote that I

can read and verify, and vote an absolutely secret ballot.

8. The most important decision for me in the method and time of voting is to

cast a secure ballot that I know reflects my choices. But Fulton County does

not permit hand marked paper ballot voting in the polling place on Election

Day or in in-person early voting, and plans to only use unreliable, insecure

Ballot Marking Device voting in the polling places. The BMDs would print

my vote in an encoded barcode which I cannot read and so I cannot verify

that my ballot reflects my choices.

9. I am aware that there were systemic problems with the electronic pollbooks

during the November 2018 general elections and many prior elections,

which resulted in authorized voters being turned away from their correct polling place; sent to wrong polling places; denied access to voting; or being forced to vote provisionally. I have attended meetings with Georgia election officials about their plans to migrate to a new electronic pollbook system and am deeply concerned by the apparent lack of planning that would be required to fix these systemic problems.

10. I am also aware that the new optical ballot scanners that will be used next year may have been designed in a way that would allow in-person scanned votes to be tied back to the individual voter, thus thwarting the secret ballot.

11. To ensure that I can verify my vote; avoid the risk that electronic pollbook errors keep me from voting; and keep my ballot secret, I am unhappily considering the choice to vote several days prior to Election Day by mail ballot, foregoing the benefits of voting on Election Day. I will make my decision closer to election day after more information is available on the security of the voting system including the pollbooks in Fulton County

12. If I choose to vote by mail, to be certain that my mail ballot vote will be counted, I must mail or deliver my mail ballot well before each election to ensure that it is accepted in time for me to remedy possible delivery failure or any deficiencies in signature match or oath information details.

13. I do not like accepting this disadvantage in casting my ballot before Election Day, but unless Fulton County is forced to adopt hand marked paper ballots, such a voting disadvantage as the only reasonable alternative that allows me to verify my vote so that it can be properly counted and audited.

14. This year I have dedicated approximately __950__ hundred hours to voting rights, voter registration and candidates' campaign activities. I will be spending hundreds more hours between now and the March 24 primaries talking with voters, encouraging them to vote. I have mixed feelings about recommending that all voters cast mail ballots, but that is my current recommendation, given that it is the only manner of voting in Fulton County that allows me to verify my selections before I cast my vote.

15. In the many conversations I have had with potential voters in the last few weeks, it is clear that many voters are well aware of the problems with BMDs, the systemic problems of the electronic pollbooks, and the State's slow and non-transparent efforts to fix them. Voters have expressed to me that they question whether it is worth voting.

16. I recognize that encouraging voters to vote a paper mail ballot at least creates a paper trail if there is a contested election, but does little to improve election security without a thorough audit of the optical scan units and tabulation server. I believe that mail ballot voting is a more secure method of

voting that may be beneficial if post-election reviews take place, although the risk of mail ballot loss and rejection are unacceptable as well.

17. Dana Bowers shared with me a document and information concerning the high number of mail ballot rejections that was referenced in her Second Declaration in this case. (Doc. 277 p.47 ¶ 8-10.) I am concerned about recommending mail ballots as a safe voting method with the unfair rules that Georgia uses to issue and accept mail ballots.

18. If I choose to go to the unwanted effort and inconvenience to cast a mail ballot, I will do so early enough to cure any problems and follow the ballots progress on the SOS website, and I will encourage other voters to do the same, urging them to do so cautiously, understanding the risks against the benefits of casting a paper ballot that can be reviewed and recounted.

19. As I stated in my declaration of May 21, 2019 (Doc. 413. Decl. Missett ¶ 6 – 10), the absolute secrecy of my ballot is important to me, and I hesitate to vote a ballot that can be traced to me. It is my understanding that the Dominion ImageCast scanner creates an electronic record of the time and order of the ballot cast by in person voters in the polling place.

I declare under penalty of perjury, in accordance with 28 U.S.C. § 1746, that the foregoing is true and correct.

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Executed on this date, October 20, 2019

_____

Megan Missett

EXHIBIT

E

IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, et al.	)))
Plaintiff,	))
vs.	)) CIVIL ACTION FILE NO.: 1:17-cv-) 2989-AT
BRIAN P. KEMP, et al.	))
Defendant.	))))

DECLARATION OF RICARDO DAVIS

RICARDO DAVIS hereby declares as follows:

1. I have personal knowledge of all facts stated in this declaration, and if called

   to testify, I could and would testify competently thereto.

2. I am a registered Georgia voter residing at ▉▉▉▉▉▉▉▉▉▉▉▉

   ▉▉▉▉▉▉▉▉▉▉▉▉

3. I am a member of the Coalition for Good Governance.

4. I will be voting in the March 24, 2020 primary election; any other elections

   that could be scheduled in the first quarter of 2020; and plan to vote in all

   future elections for which I am eligible to vote. I generally vote in every

   election of which I am aware that I can participate.

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5. I plan to vote by absentee mail ballot in all upcoming elections, including the March 24, 2020 election, because paper ballots for hand marking will not be issued at the polling places in Cherokee County on Election Day.

6. As an Information Technology professional I understand that Georgia's BMD machines are hackable; the ballot printed by BMDs may not record my true intended votes; and because a BMD would encode my vote in a printed barcode, I would not be able to verify my vote before casting it. Therefore, I will choose mail-in ballots as my typical method of voting.

7. I am also aware that there have been systemic problems with the electronic pollbooks in the most recent Georgia elections, which resulted in voters being sent to the wrong polling places, or forced to vote a provisional ballot, or wrongly being denied a ballot all together. For this reason, too, I will continue to vote using a mail-in ballot.

8. I would much prefer to vote in person every Election Day so that I can vote with my community in a shared local civic experience, and so that I have the benefit of the latest news and information about candidates and contests. In my role as Chairman of the Constitution Party of Georgia, I would particularly like to be visible to our candidates and members voting on Election Day at my local precinct, but presently, the electronic voting

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systems offered create too much risk of my vote being inaccurately recorded.

9. I am the State Chairman of the Constitution Party of Georgia, a conservative political party and, after researching Georgia's new BMD voting system, I am encouraging members and supporters to vote by mail in the upcoming elections, despite the disadvantages. Voting by mail at least creates a ballot that voters can verify before casting and preserves an auditable record of the voters' intent, which Georgia's BMD machines cannot do.

10. In my estimation, encouraging voters to vote on auditable paper ballots helps improve voter confidence and turnout. Over the years Georgia voters have heard valid reports about Georgia's unauditable elections and now I believe Georgia is trading one unauditable electronic touchscreen voting system for another. With this new BMD system, Georgia voters are rightly concerned that they will not be able verify their own BMD-generated votes, and that any manipulation of the BMDs would be very difficult or impossible to detect. This rightful concern about the integrity of the elections may discourage them from voting at all.

11. Given my technical familiarity with the security risks of Georgia's voting system, I am aware that paper ballots alone do not assure that ballots are counted accurately. Optical scan machines cannot be assumed to be any

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more accurate than BMD machines, as they are just as subject to hacking and erroneous programming. Therefore hand marked paper ballots counted by optical scanners must be thoroughly audited to confirm the reported outcomes are accurate.
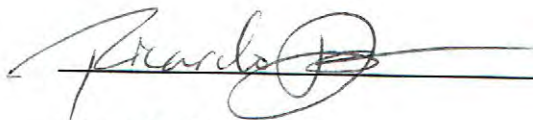
12. Additionally, as an Information Technology professional, I understand that many of the normal function of computerized systems, like logging and timestamping actions and files, could easily save enough metadata to thwart the secrecy of a voter's ballot. I understand that keeping a ballot secret would be difficult in any computerized system, and I am specifically concerned that the Dominion BMDs and optical scanners which the State intends to use are not properly designed to protect voters' secret ballots.

13. As Chairman of the Constitution Party of Georgia, I am keenly aware of that some voters voting for our candidates treasure the absolute secrecy of their vote. It is my experience that voters are frequently pressured not to vote for "third party candidates" who do not have a probability of winning. It is important to our party, our candidates and our voters that the votes cast be absolutely secret and that no hacker or insider can pierce the absolute anonymity of the vote. It is of critical interest to our party and to me that our members and our voters know with confidence that they may freely cast a

vote for their preferred candidate and never be called on to account for that choice.

I declare under penalty of perjury, in accordance with 28 U.S.C. § 1746, that the foregoing is true and correct.

Executed on this date, October 20, 2019

Ricardo Davis

EXHIBIT

F

IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, et al.	)
	)
Plaintiff,	)
	)
vs.	) CIVIL ACTION FILE NO.: 1:17-cv-2989-AT
	)
BRIAN P. KEMP, et al.	)
	)
Defendant.	)
	)

DECLARATION OF LAURA DIGGES

LAURA DIGGES hereby declares as follows:

1. I have personal knowledge of all facts stated in this declaration, and if called to testify, I could and would testify competently thereto.

2. I am a Georgia voter, registered to vote at my residence ▮▮▮▮ ▮▮▮▮▮▮▮ ▮▮▮▮ ▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮▮.

3. I am a member of the Coalition for Good Governance.

4. I will be voting in the upcoming March 24, 2020, primary election; any other elections that might be scheduled for the first quarter of 2020, such as to fill vacancies, and plan to vote in all future elections for which I am eligible to vote. I vote in every election, of which I am aware that I can participate.

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5. I plan to vote by absentee mail ballot in the upcoming elections because hand marked paper ballots will not be issued at the polling places in Cobb County on Election Day.

6. My definite preference is to vote on Election Day at my local precinct with my community and participate in the community experience, also with the benefit of the latest information on matters on the ballot.

7. I wish to cast a secure ballot that reflects my intent, but this is impossible to do by voting on the Ballot Marking Devices Cobb County plans to use in their polling places. This is because the BMDs would print my vote as an encoded barcode, which I cannot read and cannot verify before casting my vote.

8. Additionally, I am aware of the systemic problems of the electronic pollbooks during the November 2018 elections and prior elections. And I am aware that those systemic problems caused people to be sent to the wrong polling place, or be denied a ballot, or be forced to vote provisionally.

9. To ensure that I can verify my vote before casting it, and to avoid the risk of being turned away from my polling station due to electronic pollbook malfunctions, I am making the unfortunate choice to vote several days prior to Election Day by mail ballot, and unhappily giving up the benefits of voting in the polling place with my friends and neighbors.

10. I understand that I must mail or deliver my mail ballot several days before Election Day in order to confirm that it is delivered and approved in time for me to cure possible delivery failure or any technical deficiencies in the signature match or oath information details. Although this is a serious disadvantage in casting my ballot before Election Day, I will reluctantly accept this voting disadvantage for the benefit of casting a paper ballot that can be recounted and audited.

11. It is my understanding that the Dominion ImageCast ballot scanners record timestamps and other metadata with the scanned ballot images in a way that could be later be used to identify my ballot and who I voted for. I greatly value my private vote, especially where my vote might be different from friends or peers. I also do not want hackers, political campaigns, or elected officials having access to the electronic record of my ballot, which they can connect back to me. If I voted in person, I would have to cast my ballot using one of these scanners, and would thus put the secrecy of my ballot at risk.

12. I also understand that when I vote by mail, my ballot is bulk- scanned with many others, and so any timestamps the scanners create could not be used to connect my ballot back to me. My decision to vote by mail is thus also

forced on me because I believe it is the only way to protect my right to a secret ballot.

I declare under penalty of perjury in accordance with 28 U.S.C. § 1746, that the foregoing is true and correct.

Executed on this date, October 20, 2019

Laura Digges
Laura Digges

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EXHIBIT

G

IN THE UNITED STATES DISTRICT COURT FOR
THE NORTHERN DISTRICT OF GEORGIA
ATLANTA DIVISION

DONNA CURLING, et al.

Plaintiff,

vs.

BRIAN P. KEMP, et al.

Defendant.

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CIVIL ACTION FILE NO.: 1:17-cv-2989-AT

DECLARATION OF WILLIAM DIGGES III

WILLIAM DIGGES III hereby declares as follows:

1. I have personal knowledge of all facts stated in this declaration, and if called to testify, I could and would testify competently thereto.

2. I am a Georgia voter, registered to vote at my residence ███████████ ███████████

3. I am a member of the Coalition for Good Governance.

4. I will be voting in the upcoming March 24, 2020, primary election; any other elections that might be scheduled for the first quarter of 2020, such as to fill vacancies, and plan to vote in all future elections for which I am eligible to vote. I vote in every election, of which I am aware that I can participate.
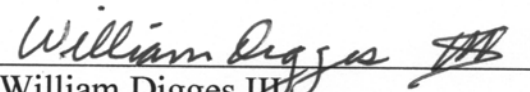
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5. I plan to vote by absentee mail ballot in the upcoming elections because hand marked paper ballots will not be issued at the polling places in Cobb County on Election Day.

6. My definite preference is to vote on Election Day at my local precinct with my community and participate in the community experience, also with the benefit of the latest information on matters on the ballot.

7. I wish to cast a secure ballot that reflects my intent, but this is impossible to do by voting on the Ballot Marking Devices Cobb County plans to use in their polling places. This is because the BMDs would print my vote as an encoded barcode, which I cannot read and cannot verify before casting my vote.

8. Additionally, I am aware of the systemic problems of the electronic pollbooks during the November 2018 elections and prior elections. And I am aware that those systemic problems caused people to be sent to the wrong polling place, or be denied a ballot, or be forced to vote provisionally.

9. To ensure that I can verify my vote before casting it, and to avoid the risk of being turned away from my polling station due to electronic pollbook malfunctions, I am making the unfortunate choice to vote several days prior to Election Day by mail ballot, and unhappily giving up the benefits of voting in the polling place with my friends and neighbors.

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10. I understand that I must mail or deliver my mail ballot several days before Election Day in order to confirm that it is delivered and approved in time for me to cure possible delivery failure or any technical deficiencies in the signature match or oath information details. Although this is a serious disadvantage in casting my ballot before Election Day, I will reluctantly accept this voting disadvantage for the benefit of casting a paper ballot that can be recounted and audited.

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12. I also understand that when I vote by mail, my ballot is bulk- scanned with many others, and so any timestamps the scanners create could not be used to connect my ballot back to me. My decision to vote by mail is thus also

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forced on me because I believe it is the only way to protect my right to a

secret ballot.

I declare under penalty of perjury in accordance with 28 U.S.C. § 1746, that the

foregoing is true and correct.

Executed on this date, October 20, 2019

William Digges III
William Digges III

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